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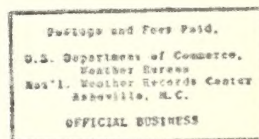
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U. S. DEPARTMENT OF COMMERCE
SINCLAIR WEEKS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief



CLIMATOLOGICAL DATA

NATIONAL SUMMARY



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JANUARY 1958

Volume 9 No. 1



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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 1

JANUARY 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

January was unusually cold in the Southeast where the winter's second major freeze on the 8th and 9th further damaged Florida's crops. In contrast, continued abnormally mild temperatures from the Great Plains westward placed the December-January period among the warmest on record in that area. Precipitation was abnormally heavy along the Pacific and Atlantic coasts and in the southwestern Great Plains with locally heavy flooding in Texas. Precipitation was scanty in the north central Interior. Heavy snows fell in the Northeast and in a belt extending from the southwestern Great Plains to the Great Lakes. Snow depths were increased substantially in the Cascade and Sierra Nevada Mountains. Cold, wet weather held up agricultural activities in the South, but more moisture was needed in some western sections of the central and northern Great Plains and some extreme southern sections west of the Continental Divide.

Fog was the outstanding weather feature in California's Central Valley where Sacramento's 19 days with heavy fog was one more than the former record and more than three times the average number for January; and Red Bluff's 8 days equaled the average number there for an entire winter.

TEMPERATURE.--Temperatures for January averaged from 2° to 10° above normal in most of New England, 2° to 14° above west of a line joining Sault Ste. Marie, Mich., and Phoenix, Ariz. Elsewhere monthly averages were below normal with the greatest departures of 6° to 8° in the Southeast.

The cold weather in Florida was perhaps the main temperature feature of the month, since it was the second consecutive abnormally cold month with damaging freezes. Citrus fruit suffered additional damage and some truck damage occurred in all areas. Lowest temperatures, occurring on the 9th, ranged from the low 20's in the northern portion to the low 30's in southern section of the State. Daytime temperatures on the 8th remained near or below 40° in north and central portions of Florida, lower than daytime temperatures on the same date in North Dakota where 40's and 50's were the rule. Despite the fact that the month generally was the coldest January on record or the coldest since 1940 in Florida, no new records for extreme low temperatures were established at stations with longterm records.

Abnormally mild temperatures persisted in the northern Great Plains and Far West for the second consecutive month, but no extreme high temperature records for the month were broken. However, this was the first January at Glasgow, Mont., that the thermometer remained above zero, emphasizing the persistency of the relatively mild temperatures. Also, at Sheridan, Wyo., the December-January period was the mildest such period of record.

A pronounced January thaw was reported during the fourth week by Sault Ste. Marie, Mich., and Buffalo, N. Y.

PRECIPITATION.--Precipitation was above normal along the Atlantic coast and in most sections of the lower Great Plains and Pacific States, but

well below normal north of the Ohio River and in the northern Great Plains. Monthly totals exceeded an inch in Texas, Oklahoma, parts of Kansas, Missouri, Iowa, and east of the Mississippi River except in Wisconsin and Michigan. Totals along the Atlantic and Gulf coasts generally exceeded 4 inches.

Most of the precipitation east of the Rockies fell during the passage of storms from the vicinity of the Gulf of Mexico to the Northeast. On the 3d one of these storms produced 3 to 5 inches of rain in southern Florida.

Another storm on the 4th, 5th, and 6th brought 7 inches or more of flood-producing rains to the lower Rio Grande and Coastal Bend sections of Texas, and up to a foot of snow in western Texas and eastern New Mexico. Continuing eastward, this storm produced moderate to heavy precipitation in all Gulf coastal areas on the 6th and along the Atlantic coast on the 7th as it moved northward about 150 miles offshore after crossing the Florida Peninsula. Centered near Cape Cod, Mass., on the 8th, winds reached hurricane force over a small area, and Nantucket, Mass., had its lowest pressure for January, 28.35 inches. Precipitation was mostly in the form of heavy snow from Virginia northward. During the storm over 12 inches of snow fell in the lower Delmar Peninsula of Maryland and 8 to 15 inches along the coast of New Jersey with 2 to 4 inches in the west and central portions of the latter State. Falls up to 20 inches covered a belt 30 to 50 miles wide from central and eastern Connecticut and northwestern Rhode Island through north-central Maine and 2 to 4 inches covered the remainder of New England. Torrential rains in the Cape Cod area totaled up to 4.50 inches.

Still another storm moving from southern Texas to New England from the 12th to the 14th brought moderate to heavy precipitation to most of the East, except southern Florida and the Great Lakes region. Snow fell over the Appalachians and along their western slopes as far south as Kentucky and from New Jersey northward. Up to 2 feet of snow fell in eastern New York State and 8 to 15 inches in northern portions of Maine, New Hampshire, and Vermont, western Massachusetts and northwestern Connecticut. The heavy snow provided excellent skiing conditions in New England.

A frontal system produced light to moderate precipitation in the Far West on the 17th and in the midcontinent area on the 18th and 19th. One to 5 inches of snow furnished beneficial moisture to western portions of the central and lower Great Plains where some sections had received no measurable amounts since the middle of November. Continuing eastward from the 20th through the 22d, this frontal system produced moderate to heavy precipitation over most of the East. A band of heavy snow extended from Kansas to the Great Lakes, with depths ranging from 8 to 12 inches in northeastern Kansas, 10 to 15 inches in west central Missouri and southeastern Iowa, and up to 10 inches in southeastern Wisconsin and north-

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

JANUARY 1958

eastern Illinois, and 6 inches or more snow fell in New York and New England.

The month's last coastal storm moved along the Gulf coast and up the Atlantic coast from the 24th to 26th producing 1 to 2 inches of rain in coastal areas, and snow and sleet in northern portions of Louisiana and Mississippi.

On January 31, 4 to 10 inches of new snow fell in northeastern Missouri and from St. Louis, Mo., eastward across Illinois.

The month was one of the wettest Januarys on record in southern Florida, and in sections of the Northeast. Boston's total precipitation, 9.54 inches, was a new record there for January. At Burlington, Vt., a 33.7-inch snowfall was the greatest there for any month.

DESTRUCTIVE STORMS.--In Sonoma County, California, a tornado, a rare type of storm for that State, caused several thousand dollars damage on

the 10th. Wind and rain over the State from the 23d through the 26th was responsible for many thousands of dollars additional damage.

Wind and rain in southern Florida on the 2d and 3d was the worst winter storm in that area since the Miami Weather Bureau Office opened in 1911. Seven lives were lost, boats were damaged along the coast and crops damaged heavily. Total losses were estimated at hundreds of thousands of dollars.

A tornado in the vicinity of Cochran, Ga., on the 24th injured 16 persons and caused a few hundred thousand dollars damage. Another tornado in the vicinity of Macon, Ga., on the 31st, along with severe thunderstorms in the State, caused several thousand dollars damage.

Snowstorms hampered transportation and required great outlays of money for snow removal in many northern areas.

CONDENSED CLIMATOLOGICAL SUMMARY

JANUARY 1958

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Brewton 3SSE	75	31	Bridgeport 2W	10	3	Robertsdale 7E	6.27	Decatur	1.00
Arizona	Sacaton	83	2	Maverick	-7	20	Bright Angel RS	1.64	35 Stations	.00
Arkansas	Crossett 7S	74	31	Gravette	-4	22	Sheridan Tower	5.50	Lee Creek Guard Sta.	.74
California	Los Angeles WB AP	87	17	Boca	-8	19	Gasquet RS	22.74	3 Stations	.00
Colorado	Eversoll Ranch	70	30	Taylor Park	-35	21	Trout Lake	2.13	Kaufmann 4SSE	.00
Connecticut	2 Stations	53	22+	Mansfield Hollow Dam	-12	10	Groton	9.68	Cream Hill	4.07
Delaware	3 Stations	60	22	Georgetown 5SW	-5	10	Middletown 2S	4.15	Georgetown 5SW	2.57
Florida	2 Stations	82	24+	DeFuniak Springs	18	9	Tavernier	11.06	Apalachicola WB City	2.37
Georgia	Homerville	75	24	Blairsville Exp. Sta.	1	10+	Tray Mountain	5.44	Antioch	1.92
Idaho	Kooskia	59	28	Obsidian 2NNW	-27	1	Elk River 1S	6.39	Mackay RS	.06
Illinois	3 Stations	58	10	3 Stations	-15	4+	Du Quoin 2S	3.60	Kirkwood 3W	.45
Indiana	Jeffersonville	57	10	South Bend WB AP	-5	8	Evansville	3.44	Muncie 4 SE	.75
Iowa	2 Stations	59	8	Decorah	-16	3	Keosauqua No. 2	1.93	Sioux Center	.03
Kansas	5 Stations	69	9+	Sabetha Lake	-9	1	Bethel 1NW	2.97	Cedar Bluff Dam	.07
Kentucky	Inez	69	21	Heigelberg Lock 14	-3	9	Campbellsville	4.05	Flemingsburg	1.23
Louisiana	Urania	79	31	2 Stations	16	8	Burrowood WB	10.63	Gorum Fire Tower	2.43
Maine	Portland	50	1	Cupsuptic Storehouse	-16	10	Jonesboro	11.10	Caribou WB Airport	3.36
Maryland	2 Stations	60	31+	Oakland 1SE	-6	5	Conowingo Dam	5.34	Cumberland Police Brks	2.26
Massachusetts	Sandwich	57	22	Birch Hill Dam	-13	10	Spot Pond	12.73	Pittsfield WB Airport	3.37
Michigan	Grayling Military R	48	13	Pellston C&A AP	-25	8	Houghton CAA AP	2.85	Millington 3SW	.45
Minnesota	Canby	57	9+	Isabella 1W	-26	7	Duluth WB AP	1.08	Worthington	.05
Mississippi	Natchez	77	31	Corinth	-5	8	Pearlington 2NNE	8.20	Independence 3N	1.89
Missouri	3 Stations	67	10+	Albany	-13	1	Kennett Radio KBOA	4.33	Granby	.48
Montana	Grass Range	69	7	2 Stations	-28	20+	Heron 2NW	4.61	Shelby	.00
Nebraska	Benkelman	68	9	Walthill	-16	1	Falls City	2.16	2 Stations	.00
Nevada	Overton	72	18	Mountain City RS	-12	22+	Glenbrook	3.54	Sarcobatus	.00
New Hampshire	Portsmouth	50	1	Monroe 5NNE	-24	21+	Mount Washington	18.23	Bethlehem	3.36
New Jersey	3 Stations	59	22	Runyon	-8	10	Cedar Grove	7.37	Belleplain	2.63
New Mexico	Hagerman	82	31	Gavilan	-32	21	Cloudcroft 1	3.16	2 Stations	.00
New York	Ossining Sing Sing	55	22	2 Stations	-26	12	Lake Ronkonkoma	9.53	Tannersville	1.03
North Carolina	Cape Hatteras WB	66	1	Banner Elk	-3	9	Rush Mountain	7.95	Cane River	1.32
North Dakota	Mott	62	8	Lisbon	-23	2	Balta	.79	4 Stations	T
Ohio	2 Stations	58	14+	Mansfield 6W	-8	9	Clarendon Lock 14	3.21	Plymouth	.78
Oklahoma	Kenton	72	30	2 Stations	5	22	Madill	4.88	Regnier	.17
Oregon	Gold Beach RS	71	6	Seneca	-11	6+	Valsetz	23.83	Buena Vista Sta.	.41
Pennsylvania	4 Stations	57	22	Ridgway 3W	-16	9	Mt. Pocono 2N AP	7.30	Sutersville	.96
Rhode Island	3 Stations	53	22+	Greenville	2	5+	Woonsocket	8.42	Block Island WB AP	6.74
South Carolina	Calhoun Falls	68	22	Landrum 5ENE	0	9	Charleston WB AP	7.20	Ridgeland 2SE	2.94
South Dakota	2 Stations	70	8	Andover 7N	-15	2	Dumont 2ENE	.98	Numerous stations	T
Tennessee	Newport	71	21	Unicoi 2ESE	-3	9	Haw Knob	6.15	Wolf Creek	1.14
Texas	Rio Grande City 2ESE	86	31	Stratford	8	22	Kingsville	12.53	Bunker Hill	T
Utah	2 Stations	63	17+	Scotfield Dam	-32	1	Silver Lake Brighton	3.65	2 Stations	T
Vermont	Bennington 2NW	48	22	Enosburg Falls	-26	20	Wardsboro	7.23	Lemington	2.29
Virginia	2 Stations	64	22+	Dante	-6	9	Montebello 3NE	6.39	Augusta Springs 1E	1.82
Washington	Ice Harbor Dam	64	16	Stockdill Ranch	-7	1	Blue Glacier	30.74	Clarkston Heights	.61
West Virginia	Williamson	69	22	Cranberry Glades	-14	5+	Pickens 1	6.04	Birch River 6SSW	1.38
Wisconsin	Neillsville 1W	49	13	Hatfield Dam	-27	3	Racine	2.32	Montello	.09
Wyoming	Metz Ranch	66	8	Bondurant	-39	20	Moose 3NW	3.91	8 Stations	.00
Puerto Rico	Guayama	94	17	Garzas Dam	50	26	Paraiso	14.20	Yauco 1S	.17
Hawaii	Upolu Point USCG	88	2	Mauna Loa Slope Obs.	22	1	Puohokamoa	23.17	11 Stations	.00

+ And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

JANUARY 1958

State and station	Pressure			Temperature										Precipitation					Wind		No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	Elevation ground, ft	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	Or inch or more	With thunderstorms	Snow, Sleet	Average hourly speed	Prevailing direction	Fastest mile		No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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CLIMATOLOGICAL DATA

JANUARY 1958

State and station	Pressure						Temperature										Precipitation										Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	Elevation (ground)	Station			Average maximum	Average minimum	Average	Departure from normal			No. of days			Greatest in 24 hours			Snow, Sleet			Average hourly speed			Fastest mile																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		Station	Sea level	Average maximum				Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F or above	Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	.01 inch or more	With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
																																			Fl	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F

CLIMATOLOGICAL DATA

JANUARY 1958

State and station	Elevation (ground)	Pressure			Temperature										Precipitation					Wind		No. of days															
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 31 inch or more With thunderstorms	Snow, Sleet	Average hourly speed	Prevailing direction	Fastest mile	No. of days (sunrise to sunset)														
ft.	mb.	mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	in.	in.	in.	in.	in.	M	M	mi.	h.															
NEW HAMPSHIRE (Cont'd.)																																					
Mt. Washington	6262	794.0	-----	20	6	13.0	7.6	35	24	-23	3	0	31	--	88	18.23	13.13	3.40	21	0	92	5	16	39.1	W	128	E	15	5	4	22	7	7	21			
NEW JERSEY																																					
Atlantic City (U)	8	1010.6	-----	40	28	33.8	-2.0	52	1	15	9+	0	19	--	--	5.24	1.46	1.76	11	0	12	7	11	16.5	80	E	23	14	1	16	5	3	57				
Newark	11	1011.6	1012.7	38	25	31.7	-2	55	22	12	4	0	24	21	63	3.55	-.05	1.19	10	0	6	3	4	11.6	36	NE	14	8	9	14	6	1	--				
Trenton (U)	56	1005.6	1012.8	38	26	31.7	-.9	57	22	12	4	0	24	--	--	3.66	.50	1.24	11	1	3	5	3	10.8	48	N	25	10	7	14	5	9	59				
NEW MEXICO																																					
Albuquerque	5310	848.6	1018.4	46	25	35.3	1.6	61	30	10	21	0	29	20	56	.21	-.07	.13	2	0	2	3	2	7	1	N	35	E	4	15	6	10	4	7	70		
Clayton	4969	843.9	1016.6	49	20	34.3	1.4	67	30	10	20	0	31	--	--	.26	-.01	.09	7	0	2	7	1	---	---	---	---	---	---	14	8	9	4	6	--		
Raton	6379	803.9	1018.3	46	13	29.9	-3	58	30	-2	21	0	31	--	--	.17	-.25	.09	5	0	1	7	1	---	---	---	---	---	---	14	10	7	8	4	--		
Roswell	3612	893.3	1016.9	53	26	39.5	-1.1	80	30	12	1	0	28	25	60	1.57	1.15	1.16	5	0	5	5	3	11.4	---	---	---	---	---	57	NW	25	10	13	8	4	9
NEW YORK																																					
Albany	277	1009.5	1013.2	29	15	22.1	-4	46	1	-7	20	0	29	16	78	4.12	1.85	.80	17	0	26	1	13	9.1	NNW	42	W	8	8	5	18	6	7	43			
Binghamton	1601	951.8	1013.0	28	15	21.2	-5	37	22+	-2	12+	0	31	15	78	4.31	1.93	1.80	20	0	34	1	13	11.4	NNW	40	NW	23	3	6	22	8	2	27			
Buffalo	693	985.8	1015.0	31	19	25.1	-4	43	13	0	9	0	31	18	75	3.81	1.03	1.44	19	0	31	1	11	12.7	WSW	45	W	1	3	6	22	8	3	30			
New York (U)	10	1011.4	-----	38	26	32.1	-.8	53	22	11	4	0	23	--	--	4.58	1.12	1.74	10	0	9	0	5	17.0	--	42	SE	22	9	7	15	6	1	49			
New York	19	1010.7	1012.4	38	27	32.3	-.7	54	22	12	4	0	20	21	66	5.23	2.04	1.45	12	0	8	8	5	16.1	NNW	68	NE	14	9	6	16	6	4	--			
Rochester	543	994.6	1014.8	30	17	23.9	-8	41	6+	0	9	0	31	19	83	2.92	.56	1.03	18	0	37	9	14	11.8	WSW	42	W	1	4	5	22	8	0	41			
Schenectady	217	-----	-----	31	17	24.3	-2.8	46	1	-1	20	0	28	--	--	4.46	2.04	1.20	15	0	26	0	19	---	---	---	---	---	---	14	2	15	5	6	--		
Syracuse	424	992.1	1015.2	29	14	21.4	-4.1	45	1	-5	20	0	31	18	83	4.46	1.67	1.47	20	0	35	6	12	10.1	WSW	40	NW	11	3	7	21	8	1	29			
NORTH CAROLINA																																					
Asheville (U)	2203	934.2	-----	41	24	32.2	-7.2	58	31	8	9	0	28	--	--	2.89	-.09	1.19	7	0	1	1	1	10.5	---	43	SE	24	7	7	17	6	5	44			
Cape Hatteras (R)	9	1014.0	1014.6	48	35	41.5	-6.5	66	1	25	6	0	10	33	72	4.13	-.03	1.46	8	0	T	0	4	13.6	NNW	43	ESR	25	9	12	10	5	5	56			
Charlotte	725	987.4	1016.7	47	27	37.3	-5.0	61	11	13	9	0	23	24	64	4.27	.59	1.79	8	0	1	0	1	8.7	NNW	36	NE	24	10	11	10	5	6	50			
Greensboro	891	984.1	1016.7	45	24	34.2	-4.8	58	31+	8	5	0	28	21	64	3.36	-.01	1.42	9	1	2	4	T	8.4	NW	30	NNW	22+	10	9	12	7	5	72			
Raleigh	433	1001.6	1016.0	46	26	35.9	-5.5	61	21	12	5	0	26	24	66	3.43	.09	1.27	7	0	3	0	1	7.5	NNW	29	E	24	11	9	11	5	4	71			
Wilmington	30	1014.6	-----	51	31	41.0	-6.8	65	24	18	5	0	20	--	--	3.73	.61	1.36	9	0	0	0	0	12.5	---	38	NE	24	11	8	12	5	6	65			
Winston-Salem	967	979.8	1016.3	44	26	35.0	-4.3	58	31+	14	9+	0	28	21	60	2.62	-1.07	1.04	8	0	8	0	1	11.0	NW	40	ENE	24	11	8	12	5	4	--			
NORTH DAKOTA																																					
Bismarck	1650	955.3	1018.8	30	7	18.1	8.9	51	8	-14	2	0	31	11	74	.43	-.07	.27	6	0	3	7	3	8.2	E	36	W	9	7	9	15	6	4	51			
Devils Lake (U)	1471	962.1	-----	23	6	14.7	9.9	42	8	-12	2	0	31	--	78	.37	-.03	.29	4	0	5	2	4	8.0	N	36	NW	9	4	6	21	7	7	43			
Fargo	895	983.1	1019.4	26	9	17.4	10.3	49	9	-16	2	0	31	11	74	.16	-.44	.08	5	0	2	8	2	15.5	N	54	W	9	6	4	21	7	6	49			
Williston (U)	1877	947.2	1017.5	31	13	22.3	12.3	50	11	-8	2	0	31	16	74	.22	-1.27	.07	6	0	1	6	2	5.9	S	34	NW	9	6	4	21	7	6	49			
OHIO																																					
Akron	1210	975.9	1016.8	33	18	25.2	-2.2	46	13+	3	19	0	31	21	83	2.19	-.55	.78	16	0	8	5	3	12.2	NW	---	---	---	---	5	4	22	7	7	--		
Cincinnati	761	-----	-----	36	24	29.9	-3.2	53	10	9	8+	0	29	--	--	2.46	-.98	.83	14	0	4	6	1	6.6	---	20	SW	6	--	--	--	--	--	39			
Cincinnati	869	984.0	1017.3	36	23	29.3	-2.5	52	13+	6	2	0	29	21	72	2.34	-1.06	.69	14	0	6	9	3	9.5	WSW	23	W	1	5	3	23	8	0	--			
Cleveland (U)	787	987.1	1016.1	34	22	28.2	-3	49	13	4	9	0	29	20	72	1.49	-.89	.50	11	0	4	4	2	15.1	S	42	SW	1	4	3	24	8	3	20			
Columbus (U)	724	-----	-----	36	23	29.1	-2.0	52	13	8	8	0	29	--	--	1.86	-.95	.59	11	0	1	9	1	---	---	---	---	---	---	5	4	22	7	7	36		
Columbus	815	986.3	1017.6	36	21	28.4	-1.3	51	13+	6	9+	0	29	22	77	1.87	-1.07	.58	13	0	2	3	1	9.6	NW	30	W	1	5	4	22	7	7	42			
Dayton	1002	979.3	1017.2	34	21	27.0	-2.7	52	13	6	8+	0	30	19	72	1.81	-1.15	.63	12	0	5	6	2	11.9	NW	40	W	1	7	2	22	7	5	32			
Sandusky (U)	603	993.0	-----	32	22	26.8	-2.0	46	10	8	9	0	31	--	--	1.29	-1.00	.36	12	0	5	4	2	8.7	---	31	SW	6	7	7	17	6	7	39			
Toledo	676	990.6	-----	32	19	25.8	-2.6	43	13+	3	4	0	31	--	--	1.23	-1.02	.50	10	0	8	1	4	10.8	---	38	SW	1	7	6	18	6	8	51			
Youngstown	1178	971.9	1016.3	33	19	26.1	-1.4	45	10	5	4	0	31	20	79	2.25	-1.07	.87	16	0	13	3	5	12.7	WSW	29	NW	17+	4	4	23	8	2	--			
OKLAHOMA																																					
Oklahoma City	1280	973.6	1018.6	50	29	39.4	2.3	63	9	16	8	0	24	31	77	1.29	-.21	1.10	4	0	1	4	1	12.8	SSE	41	NW	31	9	6	16	6	2	58			
Tulsa	672	993.2	1018.5	49	29	38.6	1.2	64	9	14	22	0	24	29	71	1.78	-.20	1.04	6	0	4	6	3	8.8	SSE	27	NW	31	8	8	15	6	1	67			
OREGON																																					
Astoria	8	1014.2	1014.8	52	40	45.9	5.8	57	26+	34	26+	0	0	41	82	9.61	-1.05	1.45	22	1	0	0	0	8.1	E	46	SSW	29	1	2	28	9	2	--			
Burns (U)	4140	875.4	1022.4	47	19	28.1	4.2	45	31+	6	7	0	31	23	84	2.37	.90	.67	12	0	16	1	8	---	---	---	---	---	---	3	4	24	8	4	--		
Eugene	361	1004.1	1017.9	49	37	42.9	4.7	64	15	27	1	0	9	--	--	9.35	3.94	2.06	19	2	0	0	0	7.8	---	46	SW	29	0	3	28	9	3	--			
Medford	4050	-----	-----	36	26	30.8	5.9	42	10+	17	4	0	31	--	--	4.60	.36	1.48	16	0	43	7	39	---	---	---	---	---	---	0	4	27	9	2	--		
Medford	1312	971.6	1020.2	46	32	39.3	2.1	61	1	24	19	0	16	36	90	5.63	1.32	2.47	15	0	T	0	0	3.9	SSE	44	SE	9	0	2	29	9	5	--			
Pendleton	1492	964.8	1019.7	44	32	37.9	7.3	60	15	16	3	0	15	32	81	2.26	.78	.75	14	0	1	2	1	8.7	SE	32	W	21	1	4	26	8	6	--			
Portland	21	1011.2	1016.8	50	37	43.6	6.2	62	15	26	7+	0	6	38	81	6.56	1.97	.90	20	0	0	0	0	10.5	ESE	45	SW	0	4	27	9	0	27				
Roseburg	595	999.3	1018.3	52	37	44.1	4.6	64	15	29	3	0	9	--	--	6.91	2.31	1.42	19	0	0	0	0	3.9	---	22	S										

CLIMATOLOGICAL DATA

JANUARY 1958

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	No. of days	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		to sunset)	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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HEATING DEGREE DAYS

(Base 65° F.)

JANUARY 1958

State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				KANSAS				NEW YORK				TEXAS (Cont'd.)			
Birmingham	788	1892	1753	Concordia (U)	1050	3025	3192	Albany	1323	3630	3901	Port Arthur	478	1011	993
Mobile	608	1309	1039	Dodge City	948	2844	3027	Binghamton	1351	4006	4193	San Angelo	611	1624	1410
Montgomery	692	1546	1381	Goodland	1061	3441	3676	Buffalo	1231	3513	3695	San Antonio	453	1086	1062
ARIZONA				Topeka (U)	1023	2846	2979	New York (U)	1014	2542	2766	Victoria	392	878	760
Flagstaff	1062	3890	4198	Topeka	1062	3018	3152	New York	1007	2474	2724	Waco	559	1339	1311
Phoenix (U)	342	892	980	Wichita	932	2733	2786	Rochester	1268	3638	3765	Wichita Falls	688	1912	1937
Phoenix	365	933	1119	KENTUCKY				Schenectady	1255	3411	3965	UTAH			
Prescott	812	2550	2641	Lexington	1065	2856	2892	Syracuse	1345	3613	3594	Milford	1181	3787	3828
Tucson	416	1077	1123	Louisville	999	2626	2666	NORTH CAROLINA				Salt Lake City	1053	3436	3473
Winslow	901	2704	2904	Pikeville (U)	927	2353		Asheville (U)	1010	2708	2427	VERMONT			
Yuma	205	492	682	LOUISIANA				Cape Hatteras (R)	723	1471	1315	Burlington	1404	4029	4385
ARKANSAS				Baton Rouge	53	652	1039	Charlotte	849	2087	1978	VIRGINIA			
Ft. Smith	809	2027	2048	Lake Charles	464	985	1009	Greensboro	946	2464	2319	Lynchburg	969	2611	2471
Little Rock	753	1782	1898	New Orleans (U)	465	901	770	Raleigh	893	2245	2036	Norfolk	852	1962	1986
Texarkana	860	1557	1513	New Orleans	502	1030	848	Wilmington	736	1655	1402	Richmond	936	2411	2360
CALIFORNIA				Shreveport	616	1425	1398	Winston-Salem	918	2357	2255	Roanoke	964	2616	2472
Bakersfield	509	1393	1380	MAINE				NORTH DAKOTA				WASHINGTON			
Bishop	774	2488	2515	Caribou	1473	4893	5663	Bismarck	1444	4626	5254	Olympia	685	2751	3122
Blue Canyon	833	3033	2899	Greenville (U)	1406	4664		Devils Lake (U)	1546	5174	5769	Seattle (U)	574	2148	2529
Burbank	242	696	976	Portland	1183	3651	4220	Fargo	1470	4764	5399	Seattle-Tacoma	656	2648	3025
Bureka (U)	420	2170	2585	MARYLAND				Grand Forks	1520	5068		Spokane	1015	3600	3993
Fresno	568	1637	1640	Baltimore (U)	863	2256	2417	Pembina	1549	5058		Stamper Pass (R)	1156	4963	5111
Los Angeles (U)	164	423	779	Baltimore	1001	2744	2773	Williston (U)	1320	4512	5271	Tatoosh Island (R)	565	2737	3193
Los Angeles	174	466	1075	Frederick	1056	3047	2842	OHIO				Walla Walla (U)	766	2623	2989
Mt. Shasta (R)	906	3368	3324	MASSACHUSETTS				Akron	1225	3575	3464	Yakima	924	3357	3657
Oakland	455	1441	1790	Blue Hill Obs. (R)	1146	3259		Cincinnati (U)	1007	2594	2653	WEST VIRGINIA			
Red Bluff	580	1760	1559	Boston	1046	2722	3128	Cincinnati	1097	2951	3028	Charleston	1038	2756	2607
Sacramento (U)	554	1599	1594	Nantucket	951	2691	3098	Cleveland	1137	3190	3313	Elkins	1206	3501	3312
Sacramento	590	1708	1714	Pittsfield	1347	4016	4291	Columbus	1131	3124	3233	Huntington (U)	994	2635	2434
Sandberg (R)	685	2372	2184	MICHIGAN				Dayton	1170	3228	3222	Parkersburg (U)	1068	2880	2773
San Diego	170	421	813	Alpena (U)	1313	4176	4320	Sandusky (U)	1180	3251	3238	WISCONSIN			
San Francisco (U)	373	1489	1709	Detroit	1182	3416	3536	Toledo	1210	3520	3573	Green Bay	1402	4458	4641
San Francisco	446	1484	1890	Detroit (Willow Run)	1194	3478	3614	Youngstown	1200	3547	3437	La Crosse	1351	4165	4459
San Jose	400	1209	1348	East Lansing (U)	1239	3639		OKLAHOMA				Madison	1360	4135	4269
Santa Maria	387	1363	1566	Escanaba (U)	1324	4404	4686	Tulsa	789	2274	2282	Milwaukee	1330	3977	3999
COLORADO				Grand Rapids	1290	3850	3927	OREGON				WYOMING			
Alamosa	1490	5261	5112	Marquette (U)	1292	4369	4602	Astoria	585	2544	2733	Casper	1129	4069	4345
Colorado Springs	995	3384	3513	Muskegon	1243	3763	3836	Burns (U)	1138	3886	4103	Cheyenne	1081	3921	4137
Denver	986	3167	3489	S. Ste. Marie	1478	4765	5162	Eugene	675	2542	2770	Lander	1295	4477	4833
Grand Junction	1084	3376	3564	MINNESOTA				Medford	1054	4217	4348	Sheridan	1034	3832	4505
Pueblo	1002	3029	3383	Duluth (U)	1513	5196	5386	Pendleton	790	2803	2711	ALASKA			
CONNECTICUT				Duluth	1522	5245	5600	Portland (U)	588	2086	2418	Anchorage	1433	5775	6419
Bridgeport	1083	2864	3169	Internat. Falls	1633	5657	6145	Portland	656	2399	2673	Annette	734	3469	3964
Hartford	1210	3319	3458	Minneapolis	1631	4197	4577	Roseburg	643	2415		Barrow	2543	11302	10875
New Haven	1094	2961	3276	Rochester	1361	4298	4716	Salem	680	2501	2640	Barter Island	2584	11163	
DELAWARE				St. Cloud	1463	4697	5173	Sexton Summit (R)	823	3381	3278	Bethel	1951	7274	7363
Wilmington	1056	2860	2824	MISSISSIPPI				PENNSYLVANIA				Cold Bay	1208	5144	
DIST. OF COLUMBIA				Jackson	707	1622	1417	Allentown	1122	3166	3337	Cordova	1130	4971	5430
Washington (U)	946	2476	2488	Meridian	740	1663	1517	Harrisburg	1070	2971	3022	Fairbanks	2102	8161	8693
Washington	943	2458	2523	Vicksburg (U)	638	1429	1282	Philadelphia (U)	971	2458	2557	Juneau	995	4493	5169
FLORIDA				MISSOURI				Philadelphia	1023	2718	2777	King Salmon	1580	6163	
Apalachicola (U)	526	1017	827	Columbia	1069	2921	3064	Pittsburgh (U)	1074	2908	2882	Kotzebue	2265	8731	8850
Daytona Beach	398	726	533	Kansas City	1020	2785	2960	Pittsburgh	1159	3317	3384	McGrath	2216	8280	8663
Fort Myers	246	412	250	St. Joseph	1134	3191	3223	Reading (U)	1028	2773	2888	Nome	1965	8073	7808
Jacksonville	505	986	804	St. Louis (U)	1001	3608	3588	Scranton	1222	3539	3413	St. Paul	1424	5885	5753
Key West (U)	55	85	46	St. Louis	1042	2765	2822	Williamsport	1146	3271	3382	Yakutat	1012	4525	5265
Miami (U)	124	207	110	Springfield	970	2655	2842	RHODE ISLAND							
Miami	137	214	118	MONTANA				Block Island	974	2579	2989				
Miami Beach	84	125	80	Billings	913	3519	4072	Providence	1056	2932	3346				
Orlando	371	620	410	Glasgow	1231	4291	5141	SOUTH CAROLINA							
Pensacola (U)	549	1144	912	Great Falls	874	3668	4270	Charleston (U)	626	1302	1103				
Tallahassee	562	1119	991	Hayes (U)	1062	3742	4811	Charleston	674	1486	1250				
Tampa	356	595	424	Helena	1129	4169	4818	Columbia	766	1759	1544				
West Palm Beach	164	256	154	Kalispell	1139	4379	4720	Florence	754	1684	1603				
GEORGIA				Miles City	1065	3737	4584	Greenville	847	2105	1873				
Athens	829	2012	1738	Missoula	1116	4058	4684	Spartanburg	855	2131	1881				
Atlanta	801	1944	1757	NEBRASKA				SOUTH DAKOTA							
Augusta	741	1740	1356	Grand Island	1189	3512	3761	Buron	1236	4073	4626				
Columbus	715	1628	1514	Lincoln (U)	1128	3269	3490	Pierre	1251	3922					
Macon	689	1546	1321	Norfolk	1248	3730	4161	Rapid City	1019	3583	4219				
Macon	860	2188	1956	North Platte	1175	3689	3852	Sioux Falls	1271	4024	4637				
Savannah	644	1405	1099	Omaha	1181	3425	3675	TENNESSEE							
IDAHO				Scottsbluff	1093	3610	3925	Bristol	1001	2631	2506				
Boise	1032	3379	3509	Valentine	1157	3756	4091	Chattanooga	876	2250	2105				
Lewiston	850	2905	3307	NEVADA				Knoxville	902	2267	2214				
Pocatello	1297	4096	4060	Elko	1217	4252	4241	Memphis	844	1974	1973				
ILLINOIS				Ely	1154	4242	4232	Nashville	911	2298	2150				
Cairo (U)	934	2296	2321	Las Vegas	580	1700	1622								

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JANUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MICHIGAN (lower) Southwestern, central and northeastern portions	1	Morning			0	0	2		Snow	10 to 14 inches of snow.
MASSACHUSETTS Southeastern portion	1	5 a.m.					4	1	Wind and snow	Windstorm tore scallop dragger loose from berth at Fairhaven wharf and dashed against draw-bridge. Damage confined to superstructure. Snowstorm up to 4 inches on Cape Cod and Martha's Vineyard required plowing and sanding roads; traffic seriously hampered and numerous highway accidents due to storm.
NORTH DAKOTA Grafton, Walsh County	1-9								Duststorm	Most severe in several years, limiting visibility to only a few feet in open areas.
IOWA Entire state	1-31				2	11	4		Snow	Left slippery streets throughout most of month in many parts of State. Numerous vehicle accidents and number of cases of falls on ice reported. These are in addition to concentration of accidents reported elsewhere on 19th-21st.
FLORIDA New Port Richey, Pasco County	2	Early a.m.			0	1			Wind (sus- pected tor- nado)	Three trailers in trailer park damaged or over- turned. Nearby trailers not affected.
FLORIDA Southeast coast and Florida Keys	2-3	All day			7	Many	5	See re- marks	Wind and rain	Low-pressure area off southeast Florida coast de- veloped rapidly on 2d, bringing strong winds, heavy rains, and rough seas to entire area. Gusts in excess of 70 m.p.h., reported in Dade and Monroe Counties. Rainfall varied from 3 to 4 inches in Dade and Broward Counties to about 8 inches on Keys. 2 freighters went aground at Miami Beach. Wind-driven tides over- flowed overseas highway to Key West briefly at Key Largo. 1 vessel with 5 persons aboard miss- ing and presumed lost. Storm reached maximum intensity about midnight 2d. Crop losses diffi- cult to estimate, first believed \$2 million but now appears less. W.B.O., Miami reports this worst winter storm since that office established in 1911.
	3									Minor storm also reported at Petersburg, Alaska.
CALIFORNIA Central Los Angeles County and western San Bernardino County	3-5				0	0	3		Wind	Winds reached peak gust of 68 m.p.h., at Fontana morning of 5th. At Canoga Park wind blew over 130-foot boom of giant crane, damaging 14 parked automobiles. In Hollywood large acacia tree uprooted, falling across parked automobile. Many tree branches and signs blown down.
TEXAS From Presidio and Brewster Counties in southwest to Parmer, Castro, and Swisher Counties in Panhandle, and to lesser ex- tent farther north to state borders north and west	4-5		400	*175	0		Unknown		Snow	General heavy snowfall began on 4th in trans- Pecos area, reaching northern Panhandle and low Rolling Plains early on 5th. Many highways closed, hundreds of motorists stranded. In cities and towns, slicked streets accounted for many traffic accidents, and few in open country because of weather conditions. Snows which stranded motorists fell from Marfa area in southwest, north for 300 miles to Plainview area in South Plains, and into New Mexico. Lesser snows fell farther north in Panhandle and drifted as much as 3 feet in some places.
TEXAS Starr, Hidal- go, Cameron, Willacy, Brooks, Jim Hogg, Jim Wells, Refugio, Nueces, San Patricio, Live Oak, Bee, Karnes and Goliad Coun- ties	4, 5 and 6th		200	*100			Unknown		Rain and wind	Winds 55 to 67 m.p.h., caused extensive damage to power lines, windows, signs, and trees. Boat damage light, mainly capsized small boats. In Corpus Christi area, estimated property damage \$75,000, exclusive of flood damage. Rains in this area totaled as much as 11 inches, unof- ficially, in some places. Part of major storm centered over northern Mexico on 4th brought snow to more northerly parts of State. 4-plus inches of rain fell in many places in Lower Rio Grande Valley and Coastal Bend in 24 hours. 3-day totals in excess of 7 inches recorded at many stations. Crops inundated, homes evacuated, and highways washed out.
	6									Minor storm also reported Southeast Alaska.
MICHIGAN (Upper)	6-7-8				0	0	2		Snow	10 to 15 inches of snow with considerable drift- ing.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JANUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Northern Black Hills, Law- rence County	7	3 a.m.			0	1	2		Ice	Automobile skidded and overturned on icy highway.
PENNSYLVANIA Southeast portion	7	Noon to midnight			0	5	4		Snow	Roads made slippery by 2- to 4-inch snowfall, resulting in numerous automobile accidents.
VIRGINIA East and east- central por- tions	7	Afternoon and evening							Snow and wind	Snow, strong winds, and high tides combined to paralyze Hampton Roads area. Up to 11 inches of snow reported at Chincoteague. Highway de- partment reported weather-caused mishaps all- time high in eastern Piedmont and Tidewater Va. Coastal low accounted for this weather.
NORTH CAROLINA Central, west- ern, and north- eastern por- tions	7				0	10	4		Snow, sleet and glaze	Several inches of snow in northeast, sleet and glaze in central and west, and rain in south- east. At least 4 school bus accidents; many automobile accidents. Schools closed in some areas.
NEW YORK Southeastern portions	7				4	10	4	1	Snow and wind	Coastal storm brought snow and some wind mostly to New York City and Long Island. 4 persons died from heart attacks caused by snow-fighting. At least 10 injuries in traffic accidents. 22,000 homes without power, due to lines down from heavy, wet snow and winds.
NEW JERSEY	7								Snow	Intense coastal storm deposited 2 to 4 inches of snow over west and central portions and 8 to 15 inches along coast and a few miles inland.
CONNECTICUT and RHODE ISLAND	7-8	1 p.m., 7th- 4 a.m. 8th			10	Many	5		Snow, rain, wind, and electrical	Most severe coastal storm in 2 years yielded 15 to 20 inches of snow from New Haven to Putnam, Conn., and northwestern Rhode Island; 6 to 12 inches elsewhere, except trace of snow and 2 to 3 inches of rain in extreme southeast. Highest storm totals 2.96 inches of rain at Quonset, R. I., and 20 inches of snow at Colchester, Conn. Wind gusts to 75 m.p.h., Narragansett Bay and lowest barometer of 28.62 inches at Block Island occurred early on 8th. Snow caused collapse of brick drying shed at Middletown for loss of \$40,000. Extensive power failures due to snow and wind breaking limbs and wires. Destroyer- type vessel damaged at Newport when struck by wind-driven vessel. Winds also damaged store windows and small structures in southern Rhode Island and raised tides 2 feet above normal to flood and erode shore roads and beaches. Snow, occurring during evening rush hours, greatly snarled traffic with scores of accidents and abandoned vehicles. Deaths all from overexer- tion. Many minor injuries in traffic accidents. Mammoth job of snow removal tied up road equip- ment more than 24 hours. Lightning observed in Rhode Island and blamed for brief failure of TV station. Storm damage considerable to smashed vehicles, power lines, and collapse of struc- tures from rather heavy snow. Rain beneficial in filling long depleted reservoirs at Newport, R. I.
MAINE; NEW HAMPSHIRE; MASSACHUSETTS Eastern portion	7-8	P.m., 7th - noon 8th			36	Un- known	6	1	Snow, wind, and rain	One of most intense coastal storms in years, at- tended by winds of hurricane force near center (Nantucket and Cape Cod Canal). Lowest January pressure of record at Nantucket, 28.35 inches. Greatest damage by wind over southeastern Massa- chusetts where trees and wires downed and build- ings and property damaged. 150 homes damaged in historic Plymouth alone. Wind driven high tides flooded low coastal roads on Cape Cod and broke sea wall to undermine road at Wells Beach, Maine. Most other parts of New England had 6 to 12 inches of snow, although 15 to more than 20 inches fell in belt 30 to 50 miles wide ex- tending from south-central Massachusetts to north-central Maine. 1 to 6 inches of snow fell along coast north of Cape Cod, while on Cape precipitation in form of rain totaled 3 to 4 inches. Traffic in all parts of area seri- ously delayed. Deaths mostly from overexertion due to walking or shoveling snow. Snow removal costs probably exceeded direct storm damage.
	9									Minor storms also reported at Dickinson, North Dakota.
CALIFORNIA Northern and central portions	9-10				0	0	3		Rain, thunder- storms and hail	General storm crossed northern and central Cali- fornia accompanied by widespread thunderstorms with hail in coastal areas. Hail broke windows in homes in Sausalito, and hailstones with

See footnotes at end of table -

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JANUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
CALIFORNIA (Cont'd.)										diameters of 1/8 to 1/4 inch fell in Mission District of San Francisco. Minor flooding in Oakland, Marin County, and on San Francisco Peninsula.
CALIFORNIA Crescent City, Del Norte County	10	2:45 a.m.	3/4	60	0	0	3		Tornado	First dipped down to sweep distance of 2 blocks on Huntington Street in Beresa Tract, then apparently skipped northeastward to dip down again in 2-block path on Amador Street in Filkins Tract. Roofs torn off, windows smashed, television antennas bent or twisted, wood piles scattered, and trees uprooted or shorn of limbs. An observer reported the sound was like the rumble of a train coming toward him, awakening him from sleep just before his roof was torn off. Tornado moved northeastward.
CALIFORNIA Bodega Bay- Sebastapol, Sonoma County	10	5:55-6:15 a.m.	15	25- 100	0	0	4		Tornado	Apparent path from Bodega Bay to midway between Sebastapol and Santa Rosa. 3 fishing boats sunk at Bodega Bay; guest cottages knocked from foundations; roofs torn from buildings. No reported damage between Bodega Bay and Sebastapol. Coming from west at Sebastapol, struck areas of Water Trough Road, Elphick Road, Cooper Road, and Kelly Subdivision. At Elphick Road, width of path 75 to 100 feet. Funnel not clearly discerned because of darkness, but appeared to dip and then rise. Observer reported hearing loud roaring noise growing in volume as funnel approached. Heavy thunder and lightning with flashes at 1 minute intervals. Hail fell for brief interval. Trees uprooted on Water Trough Road; houses and ranch buildings damaged on Elphick and Cooper Roads, with a few small outbuildings almost completely demolished. Chicken ranches hard hit, with many wire cages demolished or deposited on roofs and in trees; heavy loss of poultry. At Kelly Subdivision house moved off its foundation. Tornado continued eastward along Todd Road with diminishing violence, dissipating a few miles west of Santa Rosa. Moved east-northeastward.
	10-11									Minor storm also reported in Salt Lake City, Utah area.
NEW YORK Syracuse, Onondaga County	11				1	0	0	1	Snow	90-year old man in Syracuse died of heart attack while sweeping 3-inch snowfall from walk.
	12									Minor storms reported at Reno, Nevada, and Sobol, Oklahoma.
ALABAMA Madison County	13	Morning					4	1	Winds	Gusts did scattered damage over Huntsville and surrounding areas.
NORTH CAROLINA Western portion	13				1	200	4		Glaze	Icing in western half of State. Most of accidents in vicinity of Winston-Salem, where glazing occurred suddenly in early morning. Estimated 200 persons hospitalized. Number of very slight injuries in thousands. Single death reported was in automobile accident, 1 of several hundred attributed to icy streets and highways.
SOUTH DAKOTA Northern Black Hills and south- western Counties	13-15	P.m., 13th- a.m., 15th			1	2	3		Glaze	Six separate accidents resulted from highways glazed by freezing drizzle and packed snow.
LOUISIANA Tallulah, Madison Parish	14	Early a.m.			2	3	3		Fog	Six automobiles crashed in heavy fog, killing 2 and injuring 3 persons.
TEXAS Greenville, Hunt County	14	3:45 p.m.	1/4	25	0	0	3		Tornado	Tornado moving northeastward, wrecked 2 barns and 2 sheds, ripped out power line or two, and toppled TV antennas. Developed as white rather than dark funnel. All reports said twister swirled clockwise instead of counter-clockwise.
TEXAS Forney, Kauf- man County	14	4:40 p.m.			0	0			Funnel aloft and hail	Storm moved northeastward.
TEXAS Wills Point (2 miles east of), Van Zandt County	14	5:30 p.m.	5	300	0	0	3		Tornado and funnel aloft	Farm store considerably damaged. Two funnels, only 1 touched ground. Light hail and rain. Tornado moved northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JANUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS (Between Bon- ham and Ector) Fannin County	14				0	0			Funnel aloft	Observed moving northward.
TEXAS Delta County (15 miles northeast of Commerce, Hunt County)	14				0	0			Funnel aloft	Observed moving northeastward.
MAINE; NEW HAMPSHIRE; MASSACHUSETTS Eastern portion	14-15	P.m. 14th -all day 15th			2	12	6	1	Snow, rain, wind, and glaze	Heavy precipitation throughout area, and minor wind damage along east coast of Massachusetts. Second severe coastal storm in week. Precipi- tation mostly as rain (up to 3 inches) over southeastern Massachusetts, (including Spring- field area) and as mixed rain and snow, chang- ing to heavy, wet snow (3 to 11 inches) else- where in Massachusetts and as snow in northern New England (5 to 14 inches). Greatest damage from flooded cellars over eastern and southeast- ern Massachusetts. Cost of snow removal esti- mated at more than \$500,000. Glaze-slicked highways at times over central Massachusetts, southeastern New Hampshire, and southern Maine caused numerous highway accidents, accounting for deaths and injuries reported. Loss of power in some areas as wires downed by ice and snow accumulations and wind.
CONNECTICUT and RHODE ISLAND	14-16	Noon 14th- late p.m. 16th			0	Many			Freezing rain, rain and snow	Scores of persons injured by falls on icy walks, but traffic accidents relatively few and minor tieups. Ice-laden limbs and trees resulted in extensive power failures in western and south- eastern Connecticut. Seepage into underground cable broke phone service in Woonsocket-Pawtucket areas of Rhode Island. Heavy rain flooded base- ments and streets at Woonsocket; residents along shore roads isolated by flooding in Norwalk area of Connecticut. Ice jam on Shetucket River posed flood threat until dam gates closed upstream. Freezing rain on 14th resulted in early closing of offices, schools, and factories in both States.
PENNSYLVANIA Eastern counties	14-18	All day			1	14	4		Rain and freezing rain	Icy and rain drenched streets and highways re- sponsible for many automobile accidents in which 1 person killed.
NEW YORK Entire State	14-19				12	Many	5		Snow, sleet, glaze, rain, and wind	Freezing rain and sleet began in southern sections on 14th, but from 15th to end of storm most of precipitation snow. Snow depths up to 30 inches in Catskills. By 18th and 19th heaviest fall in snow belt south of Lakes Erie and Ontario. 12 persons died from either heart attacks shoveling snow or traffic accidents attributed to weather. Damage from hundreds of traffic accidents not estimated and injuries from accidents and falls on icy pavements probably ran into hundreds. Gale force winds in coastal sections caused damage with 1 chimney blown down at estimated \$10,000 damage. Freezing rain and wet snow raised havoc with lines and tree limbs. Greatest amount of storm trouble in western and southeast- ern New York with lesser storminess in northern counties.
WASHINGTON Western portion	15-17								Rain and snow	Landslides occurred in lower elevations of western Washington and snowslides in higher elevations of Cascades as result of heavy precipitation between 15th and 17th. 1 freight train derailed by landslide near Bellingham. Rail traffic de- layed by slides in other localities. Snowslides delayed traffic over mountain passes.
SOUTH DAKOTA Southeastern counties	18-19	P.m. 18- p.m. 19th			1	15	4		Glaze (freezing drizzle)	Numerous falls and automobile accidents.
IOWA Most of State	19-21				2	26	4		Snow	Heaviest in southeast and central. Many schools and some industries closed. Transportation dis- rupted. Slippery highways resulted in many traffic accidents. 2 deaths attributed to heart failure brought on by battling snowdrifts.
KANSAS Eastern portion	19-22				2	Many			Snow	As cold air mass moved into Kansas, snow began in northwest just after midnight on 19th, and spread eastward preceded by rain in south and east. Total snowfall 1 to 3 inches in south-central and southwest to 5 to 8 inches over most of north and extreme southeast. Heaviest in east- central and extreme northeast where some falls

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JANUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS (Cont'd.)										of 10 to 14 inches. High winds with gusts to 50 m.p.h., January 21, drifted snow badly over eastern half, blocking many roads and arterial highways. Traffic ways became slick and hazardous, especially in cuts and shady areas. Many accidents; 2 persons killed in separate accidents in Kansas City, Kans.
COLORADO Denver, Denver County	21	Early a.m.			1	0			Snow and cold	Elderly man died of exposure in Denver, during below zero temperatures, following 7-inch snowfall of 18th, 19th and 20th.
FLORIDA Cedar Key, Levy County	21	9:45 a.m.			0	0			Waterspout	Strong winds extended to shore in Cedar Key, breaking off several trees. Moved eastward.
FLORIDA Knights, Hillsborough County	21	11:20 a.m.	2	100	0	0			Tornado	Path mainly through open fields and through 1 citrus grove where number of trees uprooted. 1 large shed demolished and irrigation systems damaged. Tornado moved eastward.
FLORIDA Lake Conine, Polk County	21	12:30 p.m.			0	0			Tornado	Cloud touched ground momentarily in spots; unroofed 1 house and uprooted about 20 citrus trees. Tornado moved east-southeastward.
FLORIDA Cocoa Beach, Brevard County	21	1:40 p.m.			0	0			Waterspout	Waterspout moved ashore from Banana River, overturning 1 trailer in trailer park.
MISSOURI West central portion	21	Most of day			17				Snow	10 to 15 inches of snow fell, with considerable drifting, blocking roads and streets. Heaviest snowfall apparently in Kansas City area with 15 inches.
ILLINOIS Northwest portion	21	All day			Se- ver- al				Snow	Snowfall 5 to 10 inches northwest of line extending from south of Quincy to southeast of Peoria to south side of Chicago. It became heavy on morning of 21st and continued all day ending during night. Northeast winds of 20 to 30 m.p.h., closed many highways and stranded motorists away from home. Several persons died from overexertion during storm.
MASSACHUSETTS Central and eastern por- tions; MAINE and NEW HAMP- SHIRE southern portions	21-22						5	1	Rain and snow	Heavy rain over Massachusetts, southeastern New Hampshire, and southern Maine, and heavy snow over small area of southwestern New Hampshire. Some freezing rain in intermediate areas added to hazardous travel. Once again major damage resulted from flooded cellars, especially over eastern and southeastern Massachusetts. Over interior Massachusetts, southern Maine, and southeastern New Hampshire, city streets flooded as sewers clogged by ice and snow. In Acton, Mass., 2 buildings collapsed on 22d from combined weight of accumulated snowfall (from previous storms) and heavy rains of this storm.
CONNECTICUT and RHODE ISLAND	21-22	P.m., 21st late p.m. 22d			0	Many	4		Freezing rain, rain, fog, and electrical	Widespread heavy fog p.m. of 22d halted or delayed both air and surface travel. Main damage from flooded basements and streets in central Connecticut and Providence area. One homeowner claimed \$1,000 damage to appliances in flooded cellar. Rising water from precipitation exceeding 1.5 inches and ice jam damaged bridge on Housatonic River at New Milford and forced traffic detour. Lightning struck radio tower at Litchfield, interrupting police and teletype communications for several hours. Over 300 phones out in western Connecticut due to lightning strikes and seepage into cables. Many injured from falls on icy walks on 21st.
MICHIGAN (Lower) Southwestern and central portions	21-22				0	0	2		Snow	Up to 15 inches of snow.
	21-23									Minor storm also reported in Salt Lake City, Utah area.
PENNSYLVANIA Eastern counties	22	All day			0	3	4		Rain and freezing rain	Automobile accidents common in Pocono Mountain area where roads covered with ice. Elsewhere heavy rain accompanied storm. In Philadelphia area thunderstorm responsible for lightning-caused warehouse fire.
CALIFORNIA Western San Bernardino County	22				0	0			Wind	Northerly gales blowing through mountain passes reached peak gust of 56 m.p.h., at Fontana. Portions of highways closed to house trailer traffic because of wind hazard. Sand whipped across highways radiator-high in some areas.

See footnotes at end of table

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JANUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
WASHINGTON Entire State	23								Wind and rain	Strong wind over entire State. Heavy precipitation in some localities. Power and communication outages in all areas. Buildings damaged by wind in some localities.
CALIFORNIA Entire State	23-26				9	6	5		Wind, rain, and tornado (suspected)	Two closely associated storms caused heavy rainfall and locally strong winds. In north, heavy rains caused numerous earth slides and local flooding. 9 cars of freight train derailed by slide in Plumas County. Many minor slides in San Francisco Bay area. 5 families evacuated from flooded homes at Kentfield, and flooding occurred in other areas of Marin County, on San Francisco Peninsula, and in Santa Cruz County. Flood waters threatened bridge in Cuyama Valley, and several rock slides occurred in Kern Canyon area. At Sacramento, rain fell at excessive rate of 0.57 inch in 20 minutes. Gale winds damaged trees in vicinity of Los Banos, and several trees toppled in Marin County, Oakland, and coastside San Mateo County. Possible tornado along path between Irwin and Turlock in Merced and Stanislaus Counties caused considerable damage to farm buildings, trees, and utility lines on 25th. Storm caused numerous traffic accidents. 8 persons killed in storm-contributed traffic accidents in northern California and 1 person injured. Boy Scout lost in blizzard in Mendocino National Forest was found dead from exposure. In south, heavy rains flooded many streets in Santa Barbara, West Los Angeles, Torrance, El Segundo, Manhattan Beach, and San Gabriel Valley. Water up to 4 feet deep reported at intersection in Culver City. Numerous rock and earth slides occurred in mountains and hilly areas. Locally strong winds caused damage to utility lines and trees, and at Redondo Beach 2 boats torn from moorings and sank after smashing against seawall. 2 persons injured in storm-contributed traffic accidents, 1 person injured aboard boat, and 2 persons swept almost mile down rain swollen drainage ditch after their car ran off road near Etiwanda, but escaped with minor injuries.
SOUTH DAKOTA Northern counties	23-29				0	2	3		Ice	In some cases accidents on highways did not occur until several days after precipitation ended.
TENNESSEE Chinquapin Community Sullivan County	24	Near noon					4	1	Wind	Barn blown more than 100 feet; several trees uprooted; damage to several barns and houses.
GEORGIA Cochran, Bleckley County	24	2:50 p.m.	1- 1/2	200	0	16	5	1	Tornado	Storm completely demolished about 10 houses and damaged 50 others as it moved through southern residential section of Cochran. 4 of injured hospitalized, others treated for minor injuries. Apparently same tornado that struck Cochran did considerable damage earlier in rural section of Pulaski County to southeast of Cochran. Funnel cloud at tree-top level was seen by truck driver 3 miles northeast of Cochran shortly after storm hit town. It apparently did not reach ground at any other point. Tornado moved northeastward.
WEST VIRGINIA Tucker County	24	After- noon and evening			0	0			Wind	Roofs blown off or damaged in undetermined number of homes, stores, and other buildings. At least 1 antenna mast blown down and at least 1 barn door torn off and demolished. Trees uprooted. Damage not estimated.
	24									Minor storms also reported in western portion of North Carolina also Erwin and Elizabethton, Tennessee.
VIRGINIA Central and eastern portions	24-25	Near mid- night							Wind	Strong winds, between 50 and 60 m.p.h., along coast and inland as far as Richmond caused damage to roofs, overhead utility lines, and trees. 2 to 8 inches of snow in mountains before snow changed to rain in western Piedmont.
PENNSYLVANIA Statewide	25	All day			6	6	4		Rain and snow	50 to 70 m.p.h., wind unroofed several buildings and caused much other property damage. Deaths and injuries attributed to automobile accidents induced by slippery roads and heart attacks brought on by overexertion from shoveling 4- to 12-inch snowfall.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JANUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MARYLAND North-central portion	25						4		Wind	A "northeaster" type storm caused damage in many areas of State. At 5:08 a.m., peak gust of 78 m.p.h., reported at Friendship International Airport. Many store owners in Baltimore and surrounding counties reported cracked and broken window glass. Baltimore Gas and Electric Company and Chesapeake and Potomac Telephone Company reported dozens of trouble calls; wind had snapped wires, shorting circuits or disrupting service. Some county roads blocked by trees. Shipping in Chesapeake Bay and in Chesapeake and Delaware canal slowed by gale force winds.
MASSACHUSETTS Central and eastern portions; MAINE and NEW HAMPSHIRE Southern portions	25-27						5		Rain	Coastal areas received 2 to 4 inches of rain. Major damage from flooded cellars due to cumulative effect of precipitation from this storm and unusually frequent and heavy precipitation since 13th of this month, and from snowmelt over interior areas. Laundry roof and part of concrete foundation of home collapsed at Hudson, Massachusetts, on 26th from combined weight of snow (from previous storms) and rains of this storm. Charles and Neponset Rivers (near Boston) rose above flood stage to inundate low-lying areas.
FLORIDA Arcadia, De- Soto County	26	11:50 a.m.			0	0			Tornado (suspected)	Strong winds did localized damage that left appearances that tornado had visited area. Several buildings damaged.
FLORIDA Palm Beach, Palm Beach County	26				0	0			Waterspout	Waterspout remained offshore.
	27									Minor storm also reported in Salt Lake City, Utah area.
OREGON Western and central portions	29	Afternoon and evening	400	*100- 200			4	1	Wind and rain	Winds, reaching gusts of 60 to 75 m.p.h., at several points, up to 110 at the Mt. Hebo Air Force installation atop peak in Coast Range, and 81 m.p.h., at Columbia Lightship, broke out number of large plate glass windows in stores of several northwest Oregon cities, broke windows in score or more homes, caused hundreds of power service interruptions over western Oregon, blew down or broke off large number of trees, caused structural damage to several large buildings, and caused several thousand dollars worth of other damage. Heavy rains brought many western streams up to near flood stage, but with exception of Rogue, no serious flooding occurred. In town of Rogue River 6 homes flooded and 12 families evacuated for short time. Some damage in lower sections of several cities and towns when heavy rains, exceeding runoff capacity of storm sewers, caused basement flooding.
WASHINGTON Western portion	29				1	6	5		Wind	Most severe windstorm this winter occurred as low-pressure area approached coast. Wind speeds at coastal stations ranged from 60 to 80 m.p.h., and from 40 to 60 m.p.h. in interior valleys and in Puget Sound area. Wind speeds in excess of 100 m.p.h. recorded at a mountain observational station near coast. Ferry service discontinued to some points on Puget Sound during peak of storm. An unusually large number of power outages occurred when poles blown over or lines damaged by falling trees. Several persons in Seattle received minor injuries from flying glass when large plate glass windows broken by wind. Falling trees damaged residences and other property. 1 person killed and another seriously injured while repairing damaged power lines.
CALIFORNIA Northern portion	29-30				0	0	4		Wind and rain	Heavy rains with locally strong winds. Mud slides blocked Northwestern Pacific Railway 30 miles south of Eureka. Highway 101 partially blocked by slides near Leggett. Several small slides in Santa Cruz Mountains. Some areas of Kentfield in Marin County again flooded. Eel River at Fernbridge reached stage of 19.2 feet on 30th, flooding about 5,000 acres. Strong winds blew down trees near Salinas, and power lines suffered some damage.
ALABAMA Belgreen, Franklin County	31	1:30 p.m.	3	400	0	0	3	1	Tornado	Destroyed one home and damaged 3 others. Tornado moved northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JANUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TENNESSEE Cleveland, Bradley County	31	4:45 p.m.					4	0	Electrical	Fire, resulting from lightning, damaged home.
GEORGIA Macon, Bibb County	31	11:15 p.m.	Short	Narrow	0	0	5	1	Tornado (suspected)	Storm hit small area in south Macon, destroying service station and novelty shop and heavily damaging grocery store and several other buildings. A little earlier possibly same storm destroyed house at Lizella several miles to west of Macon. Tornado moved eastward.
GEORGIA North portion	31	P.m.					4	1	Wind, hail, and electrical	High winds associated with severe thunderstorms caused damage at several places as squall line moved across north Georgia on night of January 31. Barn blown down and several houses damaged in Farmville Community of Gordon County. 1 person injured near Dallas in Paulding County as winds destroyed 2 poultry houses. Some wind damage resulted in Atlanta area when gusts reached 52 m.p.h. Hail fell in Rome, Griffin, Decatur, and near Athens.
ILLINOIS South-central portion	31	Most of day							Snow	Snow became heavy at Alton by mid-morning. Storm moved rapidly eastward with snow ending by 9 p.m. Falls of 4 to 8 inches general in 70-mile wide zone extending from Alton eastward to Indiana border. Heaviest snow in East St. Louis metropolitan area where falls of 8 to 10 inches tied up all traffic. An unusually heavy storm for this area.
MISSOURI East central portion	31	Most of day				2			Snow	Up to 11 inches of snow in St. Louis. Traffic snarled, business disrupted.
	31									Minor storm also reported Hamilton County Tennessee.
KANSAS Eastern portion	Jan. 31 Feb. 1					0			Snow	Between 1 and 2 inches of snow fell over east on afternoon of January 31. Many roads east of Wichita, Emporia, and Topeka became slick and hazardous for traffic. Packed snow in highway cuts particularly dangerous.

* Miles instead of yards.

° Includes crop damage.

C Crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JANUARY 1958

Severe flooding occurred in the Corpus Christi area of Texas early in January. Light to moderate flooding occurred on several other Texas streams. The flooding on the Charles and Neponset Rivers in the Metropolitan Boston, Mass., area was the worst to ever occur in January. Flooding reported elsewhere over the country was mostly light.

ATLANTIC SLOPE DRAINAGE

Excessive rain during the period from the 15th to the 29th caused the worst January flood ever experienced on the Charles and Neponset Rivers in the Metropolitan Boston, Mass., area. During this period 7.08 inches of rain was reported. The total for the whole month was 9.54 inches, which is the heaviest on record for Boston. The crest on the Charles River at Charles River Village was the 4th highest of record. Several highways and many basements were flooded. Some bridges were closed but none destroyed.

The Wallkill River exceeded flood stage at Phillipsburg, N. Y., on the 27th and 28th due to ice jams below the station. Flooding was minor.

The flooding on the Raritan and Millstone Rivers on the 22d was due to heavy rains on the 21st to the 22d. Low-lying roads in the Manville-Bound Brook, N. J., area were inundated for a short period on the 22d. Heavy rain again on the 25th caused the Millstone River to exceed flood stage on the 25th.

Minor flooding occurred in Perkiomen Basin at Graterford, Pa., during the early afternoon of the 25th. This flooding was due to almost 1 inch of rainfall in less than 6 hours during the early morning hours of the 25th. In an earlier rise, this stream approached within 0.1 foot of flood stage on the 22d.

Heavy rainfall on the 13th to 14th caused flooding on the Neuse and Cape Fear Rivers in eastern North Carolina from the 15th to the 27th. Additional heavy rain on the 24th to the 25th caused flooding on all the rivers in eastern North Carolina, except the Dan River, during the remainder of the month. None of the flooding was serious, and no significant damage was reported.

Considerable flooding occurred along the Pee Dee River in South Carolina and tributaries of the lower Yadkin below Tillery Reservoir from the heavy rain on the 24th-25th. Runoff was heavy as this storm was preceded by rains of 1/2 to 1 inch on the 21st and 22d. A new high crest of 26.2 feet was reached on the Rocky River at Norwood, N. C. The tentative flood stage at this point is 16 feet. Only minor damage resulted to flooded fields at Norwood, N. C.

General rains of 1 to 2 inches on the 24th and 25th caused flooding on the Saluda and Broad Rivers in South Carolina. Damage was insignificant.

The Savannah River was near or slightly above flood stage at Clyo, Ga., most of the month. No damage resulted.

EAST GULF OF MEXICO DRAINAGE

The minor flooding on the Tombigbee River at Whitfield, Ala., from the 25th to the 31st was due to heavy rain on the 24th. No damage occurred.

Rains of 1 to 3 inches on the 20th to 21st produced minor flooding along the Pearl River in Mississippi and Louisiana. No damage was reported.

Upper Mississippi Basin.--The monthly mean stage of the Mississippi River at St. Paul, Minn., for January was 3.0 feet, 0.5 foot above normal. At

La Crosse, Wis., the monthly mean stage was 5.0 feet, 0.6 foot above normal. These were the highest monthly mean stages at these points for January since 1952.

A comparison of snow depths on January 31 with that of other years is given in the following table:

COMPARATIVE SNOW DEPTHS (INCHES)

Station	1958	1957	1956	1955
(Minnesota)				
Bimidji	5	11	26	8
International Falls	8	11	22	15
Duluth	11	14	29	17
Fargo, N. Dak.	2	2	7	3
Alexandria	5	2	16	6
New Ulm	3	T	6	4
Minneapolis	2	2	11	6
Rochester	2	1	10	3
Park Falls, Wis.	12	13	21	17

Floods or near flood conditions developed on the Kaskaskia and Sangamon Rivers in Illinois from the 23d to the 27th due to moderate to heavy rains from the 20th to the 21st. Several stations reported 1.5 to 2 inches of rain in approximately 24 hours. There was no damage of any consequence from the flooding of the Kaskaskia River.

Ohio Basin.--The flooding along the Wabash, White, Green, and lower Ohio during the latter part of December continued into the first few days of January. The Ohio crested during the early days of January. A report on this flood is given in the December issue of this publication.

A 2-inch rain on the 20th and 21st resulted in a minor flood along the Skillet Fork and the Little Wabash River in Illinois. This was the third consecutive month with flooding on these streams. Little if any additional losses were reported from the high water in January.

Red Basin.--General heavy rains with storm totals ranging from 1.75 to 3.5 inches between the 19th and 21st caused minor flooding on the Ouachita in Arkansas and on the Sulphur in Texas. Losses from the flooding were comparatively small.

Lower Mississippi Basin.--The St. Francis River continued in flood at St. Francis, Ark., from December 23 through January 5. This flooding was due to heavy rain from December 17 to December 20.

The minor flooding on the Big Black River near Bovina, Miss., from the 25th to the end of the month was due to heavy rain on the 21st and 24th. Only farmlands and pastures were affected. Damages were light.

WEST GULF OF MEXICO DRAINAGE

The flooding on the Sabine River in Texas was due to heavy rain from the 19th to the 21st. Rainfall during the period averaged 1.75 inches. Damages were minor.

There were two minor overflows on the Trinity River at Liberty, Tex., during the month. These overflows were due to heavy rain on the 12th, 13th, 20th, and 21st. Rainfall during each storm averaged 1.75 inches.

The moderate flooding on the Guadalupe River at Victoria, Tex., from the 15th to the 17th was due to heavy rain of 1.5 inches on the 12th and 13th. Runoff was heavy as the soil was nearly saturated from the heavy rains on the 5th and 6th. Several

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

JANUARY 1958

thousand acres of grazing land were flooded below Victoria. During this storm the San Antonio River reached about three-fourths bankfull stage at Goliad, Tex. Another period of moderate rains on the 23d and 24th caused another rise in all rivers, with some flooding again on the lower Guadalupe and also on the Lavaca and Navidad Rivers in the Edna and Ganado, Tex., areas. Damage from overflows was very light.

Heavy rain (over 2 inches) from the 4th to the 6th caused some flooding southwest of Corpus Christi, Tex. Many coastal stations reported rainfall during the period in excess of 7 inches. Local flooding reached serious proportions at Robstown and Bishop, Tex., where 200 and 100 families, respectively, were evacuated. Damage to crops was light and benefits from improved soil moisture more than offset flood damage, even though considerable acreage was inundated. Some local flooding occurred in Corpus Christi and Bishop, Tex., during the storm of the 23d and 24th. Only minor flooding occurred on streams.

PACIFIC SLOPE DRAINAGE

The flooding on the Eel River on the 29th and 30th was due to heavy rain on the 28th and 29th. Several thousand acres of farmland were under water at the peak of the flood. Damage from the flood was mainly due to debris and bank erosion.

Heavy rainfall (3.5 to 6.75 inches) from the 23d to the 26th produced a substantial rise on the Russian River, with a crest of a little above 27 feet at Guerneville, Calif., on the night of the 26th and 27th. Flood stage at this point is 29 feet. Many cabins in this resort area are inundated at stages several feet below the 29-foot flood stage.

Moderate to heavy precipitation occurred in the Sacramento Basin at all stations, with the snow level around 4,500 feet from the 23d to the end of the month. All rivers and streams reached and maintained high levels during the storm period

but remained below flood stage at all points except at the weirs. Overflow occurred at all of the fixed-sill weirs in the Sacramento Flood Control System into Butte Basin and Sutter and Yolo bypasses. Only moderate rises occurred on streams tributary to the San Joaquin, with reservoir storage absorbing most of these rises, permitting only slight rises to reach the lower San Joaquin.

The flooding on the Rogue River at Raygold, Oreg., on the 28th and 29th was due to heavy rain (3 to 5 inches) on the 27th and 28th. Rainfall was light in the headwaters. Runoff was rapid as the ground was saturated from previous rains. Double crests exceeding 14 feet (flood stage 12 feet) occurred at Raygold 12 hours apart on the 29th. This same storm caused flooding on the Umpqua River at Roseburg, Oreg., on the 29th. Precipitation over the Umpqua was lighter than over the Rogue and ranged from 2.5 inches in the headwaters to 3.5 inches in the middle and lower sections.

Several families along the main Rogue above Savage Rapids Dam, Oreg., were evacuated. Water did get into several houses, but damage was small. A bridge approach on Evans Creek near the town of Rogue River, Oreg., was destroyed; also, a section of the county road was washed out.

Light local flooding occurred on the McKenzie, Santiam, and Tualatin Rivers in Oregon between the 29th and February 1 from heavy rain beginning on the 24th. There was some local flooding on Mill Creek at Turner, Oreg., about 7 miles southeast of Salem. Shallow water ran through the business section for several hours. Several families were evacuated. A few secondary roads were closed for a short time due to the high water.

The flooding on the Snohomish and Snoqualmie Rivers in Washington on the 17th was due to more than 1 inch of rain in 12 hours on the 16th. No damage was reported.

FLOOD STAGE DATA

(All dates in January unless otherwise specified)

JANUARY 1958

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
Charles:	<i>Ft</i>			<i>Ft</i>	
Charles River Village, Mass.	4	20	Feb. 7	6.1	29
Neponset: Norwood, Mass.	9	15 22	17 Feb. 2	10.8	27
Varitan: Bound Brook, N. J.	8	22	22	8.4	22
Millstone: Blackwells Mills, N.J.	7	22 25	22 25	7.5 7.5	22 25
Perkiomen: Graterford, Pa.	8	25	25	8.3	25
Rosnoke:					
Randolph, Va.	21	27	27	21.0	27
Williamston, N. C.	10	19 23	5 19 1	10.7 11.0	1 31
Tar: Greenville, N. C.	13	31	31	13.1	31
Neuse: Neuse, N. C.	14	16 26	18 29	16.8 16.6	17 28
Smithfield, N. C.	13	15 26	19 30	16.2 17.0	19 27
Goldsboro, N. C.	14	18 28	23 Feb. 4	16.5 17.6	22 Feb. 1
Kinston, N. C.	14	22	27	14.8	25
Cape Fear:					
Moncure, N. C.	20	25	25	20.6	25
Fayetteville, N. C.	35	15	16	35.9	15
Lock No. 2, Elizabethtown, N. C.	20	15 26	19 30	27.9 29.3	16 28
Rocky River: Norwood, N. C.	16	24	26	26.2	25
Pee Dee:					
Cheraw, S. C.	30	25	27	36.75	26
Peedee, S.C.	19	26	Feb. 5	22.6	31
Saluda: Pelzer, S. C.	6	25	27	6.5	25, 26
Broad: Blair, S.C.	14	25	27	18.4	25
Savannah: Clio, Ga.	11	1 3 28	1 23 1/	11.1 12.2	1 16-17
EAST GULF OF MEXICO DRAINAGE					
Tombigbee: Lock 3, Whitfield, Ala.	33	25	31	39.7	28
Pearl:					
Jackson, Miss.	18	22	Feb. 2	22.5	26
Bogalusa, La.	15	24	1/	17.7	26
Pearl River, La.	12	27	1/	12.9	29-30
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Kaskaskia: Carlyle, Ill.	21	24	31	22.5	27
Ohio Basin					
Green: Lock 2, Calhoun, Ky	23	Dec. 22	1	25.9	Dec. 27
Skillet Fork: Wayne City, Ill.	15	21	25	20.1	22
Little Wabash: Wilcox, Ill.	16	21	26	20.4	23
White:					
Elliston, Ind.	18	Dec. 19	Dec. 31	26.65	Dec. 23
Edwardsport, Ind.	12	Dec. 19 22	6 26	23.3 14.6	Dec. 24 Dec. 24
Petersburg, Ind.	16	Dec. 20	5	24.2	Dec. 26
Hazelton, Ind.	16	Dec. 20		25.5	Dec. 27
Wabash:					
Covington, Ind.	16	Dec. 20	Dec. 31	23.6 19.1	Dec. 23 Dec. 29
Montezuma, Ind.	14	Dec. 19	2	24.2	Dec. 23
Terre Haute, Ind.	14	Dec. 20	2	19.8	Dec. 23 & 24
Hutsonville, Ill.	20	Dec. 21	2	23.8	Dec. 25, 26
Riverton, Ind.	18	Dec. 21	4	21.2	Dec. 27
Vincennes, Ind.	16	Dec. 21	5	22.9	Dec. 28
Mt. Carmel, Ill.	17	Dec. 21	5	24.5	Dec. 28
New Harmony, Ind.	15	Dec. 22	7	20.1	Dec. 29
Ohio:					
Mt. Vernon, Ind	35	Dec. 29	4	36.1	2
Dam #49, Uniontown, Ky.	37	Dec. 28	4	39.6	1
Shawneetown, Ill.	33	Dec. 24	7	39.5	2

River and station	Flood stage	Above flood stages -dates		Crest *	
		From--	To--	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
Ohio (Cont'd.):					
Dam 50, Fords Ferry, Ky.	34	Dec. 23	7	41.8	2
Dam 52, Brookport, Ill.	37	Dec. 26	4	38.2	3
Dam 53, Mound City, nr., Ill.	42	Dec. 27	4	42.5	2
Red Basin					
Ouachita: Arkadelphia, Ark.	17	21	22	19.5	21
Camden, Ark.	26	23	28	31.4	26
Sulphur: Hagansport, Tex.	38	14	17	41.2	21
Naples, Tex.	22	17	30	26.2	21
				26.4	24
Lower Mississippi Basin					
St. Francis: St. Francis, Ark.	18	Dec. 23	5	21.2	Dec. 27-28
Big Black: Bovina, Miss.	28	25	31	29.0	29
WEST GULF OF MEXICO DRAINAGE					
Sabine: Quitman, Tex.	16	22	23	16.7	22
Mineola, Tex.	14	21	28	15.5	21, 22
Gladewater, Tex.	26	28	31	27.1	30
Bon Wier, Tex.	17	23	26	18.1	24
Deweyville, Tex.	14	24	31	14.8	28
Trinity: Liberty, Tex.	24	14	16	24.9	15
		21	27	26.2	24
Navidad: Ganado, Tex.	21	24	26	24.6	25
Lavaca: Edna, Tex.	21	25	25	21.0	25
Guadalupe: Victoria, Tex.	21	15	17	24.7	16
		26	27	22.0	27
Frio: Tilden, Tex.	12	5	9	20.1	7
		12	12	13.0	12
		23	26	20.0	25
Calliham, Tex.	11	5	9	25.6	6
		12	13	19.0	13
		23	26	20.85	24
Atascosa: Whitsett, Tex.	20	6	8	23.5	7
		12	14	25.3	14
		24	25	22.25	25
Nueces: Tilden Crossing, Tex.	11	5	14	19.6	9
		24	27	15.1	25
Calallen, Tex.	7	6	21	9.4	13
		27	31	8.3	29
PACIFIC SLOPE DRAINAGE					
Eel: Fernbridge, Calif.	17.5	29	30	19.2	30
Sacramento: Moulton Weir, Calif.	76.8	27	28	79.0	27
		30	31	79.0	31
Colusa Weir, Calif.	61.8	13	15	63.2	14
		25	31	63.5	26
Tisdale Weir, Calif.	45.5	3	4	46.2	4
		11	17	47.7	14
		25	31	49.0	28
Fremont Weir, Calif.	33.5	27	31	36.4	31
Rogue: Raygold, Oreg.	12	28	29	14.4	29
McKenzie: Leesburg, Oreg.	12	29	29	12.4	29
Santiam: Jefferson, Oreg.	13	29	30	14.3	29
Tuslaton: Dilley, Oreg.	12	30	Feb. 1	12.4	31
Snoqualmie: Carnation, Wash.	51	17	17	51.7	17
Snohomish: Snohomish, Wash.	23	17	17	23.8	17

* Provisional
 # Highest observed stage
 1/ Continued at end of month
 A Tentative
 E Estimated

Average monthly values

JANUARY 1958

See reference note at end of table

Average monthly values

CARIBOU, ME (989 MB.)										CHARLESTON, S. C. (1015 MB.)										COLD BAY, ALASKA (988 MB.)										COLUMBIA, MO. (989 MB.)										DAYTON, OHIO (980 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																			
						Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed																		
SURFACE	29	191	- 8.5	80	10	3.1	31	13	2.7	81	303	3.3	31	27	- 4.3	87	1	5.6	31	238	- 3.9	84	301	1.4	31	297	- 5.0	73	276	2.5																			
1,000-	29	107	- 8.5		30		31	136	4.1	70	337	3.3	31	- 7.4	- 3.2				31	150			31		31	137																							
950-	29	508	- 8.5		78	305	2.9	31	550	3.7	60	336	7.0	31	330	- 4.2	82	355	8.7	31	559	- 1.4	66	288	4.7	31	540	- 4.8	70	284	6.4																		
900-	29	925	- 7.8	81	322	3.3	31	992	2.5	55	287	8.9	31	737	- 6.4	82	4	9.9	31	989	- 1.2	57	308	8.7	31	957	- 5.4	67	284	9.5																			
850-	29	1,372	- 6.3	69	290	3.9	31	1,454	2.2	44	276	13.2	31	1,202	- 8.4	76	7	8.9	31	1,444	- 1.8	53	312	10.3	31	1,416	- 6.4	64	288	13.4																			
800-	29	2,184	- 5.6	61	245	5.6	31	2,943	1.2	44	272	17.2	31	1,671	- 10.2	65	9	2.7	31	1,925	- 3.4	52	313	12.0	31	1,891	- 6.7	57	288	14.8																			
750-	29	2,351	- 8.2	58	234	6.4	30	2,461	- 1.4	38	270	22.7	31	2,158	-12.5	59	32	7.4	31	2,431	- 5.7	49	310	14.6	31	2,392	- 8.4	53	289	17.3																			
700-	29	2,883	-10.7	57	224	8.2	30	3,012	- 3.0	36	272	26.4	31	2,690	-15.3	55	39	5.1	31	2,972	- 8.1	49	310	17.7	31	2,927	-10.9	52	290	19.6																			
650-	29	3,485	-13.4	53	229	10.1	29	3,589	- 6.5	36	267	30.9	31	3,236	-18.9	52	85	4.7	31	3,541	-10.7	46	308	20.2	31	3,489	-13.7	46	290	22.3																			
600-	28	4,055	-16.9	49	223	13.6	29	4,214	-10.1	31	265	35.6	31	3,837	-22.4	48	131	3.3	31	4,158	-14.2	43	307	22.7	31	4,099	-16.7	40	292	24.7																			
550-	27	4,701	-20.9	53	226	15.2	29	4,876	-14.3	33	267	37.7	31	4,460	-26.8	46	182	3.3	31	4,805	-18.3	36	306	24.7	31	4,747	-20.2	40	291	27.4																			
500-	27	5,403	-25.7	53	227	17.7	29	5,569	-19.1	31	266	43.9	31	5,152	-31.5	43	231	3.7	31	5,518	-23.2	36	305	26.6	31	5,449	-24.9	40	287	31.3																			
450-	27	6,153	-31.0	53	219	22.0	29	6,399	-24.4	33	267	50.7	31	5,880	-36.6	45	209	4.9	31	6,273	-29.0		304	28.6	31	6,201	-30.4	40	282	32.8																			
400-	27	6,986	-36.9	54	220	26.6	29	7,221	-30.1	31	267	54.0	31	6,997	-42.5	45	222	7.2	31	7,155	-35.3		301	30.3	31	7,035	-36.7	40	275	35.8																			
350-	27	7,897	-43.5		221	31.9	29	8,159	-36.5	31	265																																						

See reference note at end of table

Average monthly values

JANUARY 1958

See reference note at end of table

RAWINSONDE DATA

Average monthly values

JANUARY 1958

MIDLAND, TEX. (917 MB.)							MONTGOMERY, ALA. (1011 MB.)							NANTUCKET, MASS. (1008 MB.)							NASHVILLE, TENN. (997 MB.)							N. Y. INT. AP. IDLEWILD (1012 MB.)						
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity										
				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed									
SURFACE	31	871	1.2	80	263	3.7	31	61	2.1	76	338	1.7	31	14	0.7	81	302	3.5	31	177	-1.1	84	291	2.1	31	5	-1.2	67	304	6.0				
1,000----	31	165					31	147	2.3	67	351	3.5	31	79			310	7.8	31	149			288	3.9	31	96			308	9.3				
950----	31	583					31	565	3.2	62	332	4.7	31	489	-9	76	302	8.9	31	557	-7	65	288	3.9	31	506	-2.8	63	318	12.2				
900----	31	1,021	5.1	60	269	5.6	31	1,002	2.8	54	299	6.8	31	921	-2.4	72	291	9.5	31	991	-1.9	62	304	7.4	31	932	-3.8	62	319	11.3				
850----	31	1,488	4.8	47	290	9.1	31	1,465	2.0	49	289	11.5	31	1,375	-3.4	63	280	11.5	31	1,445	-2.8	56	309	11.3	31	1,383	-4.7	61	296	12.4				
800----	31	1,981	3.0	43	285	11.5	31	1,954	1.5	41	283	16.5	31	1,854	-4.6	61	279	14.2	31	1,926	-3.3	46	306	14.6	31	1,859	-5.7	61	296	12.4				
750----	31	2,499	-2	41	290	13.6	31	2,474	-4	36	281	21.0	31	2,360	-6.4	55	282	15.9	31	2,433	-4.9	45	298	17.7	31	2,366	-7.4	56	279	14.8				
700----	31	3,052	-2.7	39	291	15.0	31	3,022	-2.8	32	277	24.5	31	2,898	-8.6	50	276	15.0	31	2,976	-7.2	43	297	25.1	31	2,899	-9.7	51	270	17.9				
650----	31	3,631	-6.1	37	290	14.8	31	3,605	-6.2		276	27	31	3,467	-11.3	46	268	15.2	31	3,548	-9	38	295	24.3	31	3,470	-12.6	47	272	20.4				
600----	31	4,258	-9.8	35	293	19.2	31	4,229	-9.7		273	32.6	31	4,081	-14.8	41	245	16.3	31	4,165	-13.2		290	24.5	31	4,076	-16.0	41	270	23.9				
550----	31	4,922	-14.1		286	19.4	31	4,895	-14.0		269	37.9	31	4,731	-18.4	39	232	15.3	31	4,818	-17.3		284	27.8	31	4,725	-19.7	41	266	25.6				
500----	31	5,642	-19.4		278	18.8	31	5,614	-18.8		266	42.4	31	5,442	-22.8		225	14.8	31	5,531	-22.6		277	30.3	31	5,428	-24.3		261	29.3				
450----	31	6,408	-25.3		270	21.2	31	6,390	-24.4		267	48.4	31	6,200	-28.2		232	18.8	31	6,290	-28.2		266	30.3	31	6,182	-29.3		259	33.6				
400----	31	7,262	-31.7		261	25.5	31	7,241	-30.8	33	263	55.2	31	7,043	-34.4		225	14.2	31	7,134	-34.3		268	37.1	31	7,020	-35.2		255	37.9				
350----	31	8,194	-38.5		250	26.6	31	8,176	-37.0		262	65.1	31	7,965	-41.1		214	10.9	31	8,047	-41.0		275	42.2	31	7,938	-41.3		257	41.2				
300----	31	9,237	-45.6		251	33.0	31	9,228	-43.4		259	78.5	31	8,998	-47.7		169	12.6	30	9,083	-47.4				31	8,971	-47.2		258	46.8				
250----	31	10,436	-51.3		260	38.1	31	10,439	-50.3		257	91.5	31	10,189	-52.5		226	20.8	30	10,275	-51.9				31	10,165	-51.6		259	53.2				
200----	29	11,874	-54.4		257	49.5	31	11,884	-54.0		258	90.9	29	11,618	-54.1				30	11,713	-53.5				31	11,608	-53.5		259	55.0				
175----	28	12,728	-55.4		31	12,738	-55.4		259	83.7	29	12,475	-54.1					29	12,574	-53.7				31	12,468	-53.4		261	57.2					
150----	29	13,708	-57.0		31	13,718	-57.0		259	76.9	28	13,466	-54.8					29	13,564	-54.4				31	13,457	-54.5		262	47.0					
125----	28	14,851	-58.7		30	14,864	-60.0		262	64.5	27	14,626	-55.6					28	14,729	-56.3				31	14,623	-55.2		263	42.9					
100----	28	16,243	-61.8		30	16,249	-62.9		263	52.3	27	16,041	-57.5					28	16,138	-58.9				31	16,040	-57.0		266	41.2					
80----	26	17,622	-63.1		30	17,621	-63.7		263	32.6	26	17,445	-58.7					26	17,534	-60.0				31	17,445	-58.0		268	36.1					
60----	25	19,404	-61.1		29	19,395	-61.6		263	20.0	26	19,248	-59.5					22	19,330	-59.8				31	19,248	-59.4		273	34.1					
50----	25	20,541	-59.4		29	20,530	-60.8		268	14.4	25	20,388	-59.8					21	20,478	-58.8				31	20,393	-59.5		277	32.2					
40----	24	21,945	-57.7		28	21,925	-58.6		275	11.9	25	21,781	-60.1					18	21,892	-57.1				31	21,789	-58.8		279	33.8					
30----	25	23,766	-56.7		25	23,748	-57.9		271	16.5	23	23,590	-56.5					18	23,718	-56.1				31	23,567	-60.4		277	37.9					
20----	24	24,933	-54.6		22	24,919	-54.2		270	16.1	18	24,739	-58.7					14	24,909	-54.5				8	23,567	-57.7								
15----	26	26,357	-54.6		16	26,354	-52.3				26	26,181	-57.7					12	26,355	-53.9				7	28,244	-50.6								

Average monthly values

JANUARY 1958

See reference note at end of table

Average monthly values

JANUARY 1958

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

JANUARY 1958

Date	Sun's zenith distance								
	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Jan. 13-----	----	----	----	1.50	----	1.48	----	----	----
14-----	----	----	----	1.42	----	----	1.35	1.23	1.10
15-----	K0.63	1.26	1.34	----	----	1.49	1.35	1.23	1.12
16-----	K1.10	1.21	1.28	1.48	----	----	----	----	----
17-21----	----	----	----	----	Cloudy	----	----	----	----
22-----	----	----	----	----	----	----	----	1.15	1.09
23-----	----	----	----	1.49	----	1.47	----	----	----
24-27----	----	----	----	----	Cloudy	----	----	----	----
29-----	----	1.21	1.31	----	----	----	----	----	----
30-----	----	----	----	----	Cloudy	----	----	----	----
31-----	----	----	----	----	----	1.47	1.32	1.21	1.10
Averages	.87	1.26	1.31	1.47	----	1.48	1.34	1.21	1.10

LINCOLN, NEBR.									
	Air mass								
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Jan. 1-----	-----	-----	-----	-----	1.16	-----	1.09	0.99	0.88
2-----	0.85	0.97	1.07	-----	1.15	-----	K.94	K.81	K.81
3-----	.81	.91	1.02	-----	1.14	-----	1.02	K.86	K.76
4-----	.79	.89	1.02	-----	1.17	-----	1.10	.99	.90
5-----	.97	1.04	1.14	-----	1.21	-----	K1.01	K.87	K.78
6-----	K.85	K.96	1.10	-----	1.21	-----	1.11	1.01	.93
7-----	.86	.97	1.10	-----	1.20	-----	K1.09	K.97	.87
8-----	-----	.98	1.09	-----	-----	-----	-----	-----	-----
9-----	K.86	K.94	K1.04	-----	K1.12	-----	1.05	.93	.82
10-----	.79	.91	1.03	-----	1.13	-----	-----	-----	-----
11-----	.86	.97	1.06	-----	1.23	-----	1.05	.95	.86
12-----	.88	.99	K1.09	K1.22	K1.24	K1.23	K1.11	K1.01	K1.91
Aver- ages	.85	.95	1.15	1.22	1.17	1.23	1.06	.95	.85

MADISON, WIS.									
	Air mass								
	4.84	3.87	2.90	1.94	*	1.94	2.90	3.87	4.84
Jan. 1-----	S0.92	S1.03	Sc	-----	Sc	-----	S1.14	S1.01	S0.94
2-----	M.94	M1.05	M1.20	-----	S1.34	-----	M1.24	M1.09	M1.00
3-----	-----	-----	-----	-----	-----	-----	I.76	I.72	I.90
4-----	-----	-----	-----	-----	-----	-----	S1.22	S1.16	-----
5-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9-----	M.88	M1.06	M1.15	-----	-----	-----	M1.24	-----	-----
10-----	DM.74	DM.92	DM1.14	-----	M1.35	-----	S1.26	-----	-----
11-----	S1.03	S1.15	S1.25	-----	S1.33	-----	S1.23	S1.10	S1.01
12-----	H.73	H.86	H1.02	-----	M1.19	-----	M1.04	M.84	M.71
13-----	S.99	S1.10	S1.25	-----	S1.36	-----	-----	-----	-----
14-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
15-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
16-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
17-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
18-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
19-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
20-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
21-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
22-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Aver- ages	.89	1.02	1.17	-----	1.32	-----	1.13	1.00	.95

* Values corresponding to true solar noon
 H Haze (fog-smoke)
 M Moderate haze - indeterminable
 S Slight haze - indeterminable
 K Smoke
 KS Slight smoke
 KK Dump-fire smoke aloft
 Clouds
 C1
 Ac
 C1
 M1.35
 S1.26
 S1.23
 M1.04
 S1.36
 Ac
 C1
 M1.35
 S1.26
 S1.23
 M1.04
 S1.36
 Ac
 C1

Sun's zenith distance									
Date	A. M.				*	P. M.			
	78 7°	75 7°	70 7°	60 0°		60 0°	70 7°	75 7°	78 7°
OMAHA, NEBR.									
Air mass									
	4 78	3 82	2 87	1 91	*	1 91	2 87	3 82	4 78
Jan.	----	----	----	----	S0.31	----	M0.27	M0.24	M0.22
1-----	S0.22	S0.24	S0.26	----	S.28	----	M.27	M.24	M.22
2-----	----	----	----	----	----	----	----	----	----
3-----	M.20	M.23	S.26	----	S.29	----	----	----	----
4-----	S.22	S.23	S.26	----	----	----	----	----	----
5-----	S.23	S.25	S.28	----	----	----	----	----	----
6-----	----	----	----	----	S.29	----	----	----	----
7-----	----	----	----	----	----	----	----	----	----
8-----	M.17	M.21	----	----	M.27	----	M.26	M.20	M.19
9-----	S.17	S.22	S.25	----	M.27	----	----	----	----
10-----	----	----	S.26	----	S.29	----	M.24	----	----
11-----	----	----	----	----	----	----	----	----	----
12-----	----	----	----	----	----	----	----	----	----
Aver- ages	.20	.23	.26	----	.29	----	.26	.23	.21

BLUE HILL, MASS.										
	Air mass									
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89	
Jan. 1-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
2-----	0.93	1.01	-----	-----	-----	-----	-----	-----	-----	
3-----	.79	.87	1.01	-----	-----	-----	-----	-----	-----	
4-----	.84	.98	1.08	-----	1.20	-----	-----	0.98	0.88	
5-----	.94	1.05	1.17	-----	1.24	-----	-----	-----	-----	
6-----	.89	1.10	1.12	-----	1.12	-----	S0.99	S.84	S.75	
7-----	-----	-----	-----	-----	1.08	-----	.96	.82	.74	
8-----	.94	1.06	1.16	-----	1.24	-----	-----	-----	-----	
9-----	.98	1.06	1.16	-----	1.24	-----	1.15	1.05	.96	
10-----	-----	-----	-----	-----	-----	-----	1.07	.97	.87	
11-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
12-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
13-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Aver- ages	.90	1.01	1.12	-----	1.19	-----	1.04	.93	.84	

WASHINGTON, D. C. (WBEO)										
	Air mass									
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00	
Jan. 1-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
2-----	0.99	1.09	1.17	-----	-----	-----	-----	-----	-----	
3-----	HI .66	HI .81	-----	-----	-----	-----	-----	-----	-----	
4-----	.82	.97	1.13	-----	1.28	-----	1.11	-----	-----	
5-----	.81	.93	1.07	-----	-----	-----	-----	-----	-----	
6-----	KS.76	KS.88	1.07	-----	1.26	-----	-----	-----	-----	
7-----	KS.69	KS.82	.97	-----	-----	-----	-----	-----	-----	
8-----	KS.72	.85	1.02	-----	-----	-----	-----	-----	-----	
9-----	HM.77	HM.87	-----	-----	-----	-----	-----	-----	-----	
10-----	1.01	1.11	1.24	1.37	1.38	1.36	1.20	1.06	0.94	
11-----	HI .64	HM.75	HS.84	HS.94	-----	-----	-----	-----	-----	
12-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
13-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
14-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
15-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
16-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
17-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
18-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
19-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
20-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
21-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
22-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
23-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
24-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
25-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Aver- ages	.96	1.07	1.21	1.38	1.37	1.30	1.16	.92	.92	

TUCSON, ARIZ.										
	Air mass									
	4 56	3 65	2 74	1 83	*	1 83	2 74	3 65	4 56	
Jan.										
1-----	0.91	1.02	1.15	1.32	1.35	1.34	1.15	0.53	0.93	
12-----	1.01	1.11	1.23	1.36	-----	-----	-----	-----	-----	
13-----	-----	-----	-----	-----	1.41	1.36	1.21	1.08	.97	
18-----	-----	-----	-----	-----	1.35	1.28	-----	.98	.87	
22-----	-----	-----	-----	-----	1.35	1.26	1.09	.97	.86	
24-----	.92	1.06	1.23	1.42	-----	-----	-----	-----	-----	
25-----	.99	1.09	1.23	1.40	1.39	1.25	1.20	1.04	.95	
Aver-										
ages	.96	1.07	1.21	1.38	1.37	1.30	1.16	.92	.92	

SOLAR RADIATION DATA

JANUARY 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg							Avg							Avg						
Date-----	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Langleys-----	3	492	418	570	521	534	13	364	329	434	607	427	627	581	30	434	7	15	16	17	18
Date-----	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11
Langleys-----	23	546	339	4	14	16	19	137	56	191	518	45	145	610	355	274					

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

	Avg							Avg							Avg						
Date-----	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Langleys-----	14	57	59	41	41	38	35	41	83	59	40	95	38	56	61	14	24	74	52	98	67
Date-----	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11
Langleys-----	43	77	86	14	24	33	40	45	74	99	92	89	138	107	100						

Note: Langley is the unit used to denote one gram calorie per square centimeter.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

JANUARY 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	*-31	1	3	7	28	46	*-29	*-24	26	56	26	24	-5	62	61	64	32	41	48	73	*-16	48	31	*-8	146	110	33	62	*26	31	65	35

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

JANUARY 1958

	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N. C.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	
1958																														
Jan. 1-----	328	52	43	62	242	*	12	192	21	167	7	213	522	187	27	49	---	277	---	141	290	150	351	218	4	344	247	36	157	251
Jan. 2-----	314	49	133	60	318	---	(31)	191	224	147	204	327	277	---	127	159	---	280	105	153	296	188	293	232	9	344	183	42	152	230
Jan. 3-----	274	49	360	123	313	---	34	186	187	217	169	144	506	120	161	209	---	240	161	248	191	249	347	246	6	295	42	259	158	251
Jan. 4-----	101	48	372	157	314	---	37	175	234	38	212	33	325	244	176	332	(250)	144	243	166	224	57	269	6	6	222	190	287	---	253
Jan. 5-----	174	36	181	138	320	---	31	104	227	77	198	56	549	318	182	327	---	185	67	125	289	242	93	262	3	176	91	238	126	245
Jan. 6-----	329	56	29	93	119	---	10	183	216	202	189	51	607	342	83	126	---	249	78	57	(299)	75	359	258	---	168	40	27	154	252
Jan. 7-----	333	113	305	61	322	---	12	183	36	219	29	405	645	(21)	68	83	---	201	58	44	---	222	352	268	3	354	83	89	149	255
Average-----	265	57	203	99	278	---	(20)	174	164	152	144	175	490	(205)	118	184	---	(210)	102	144	(255)	193	264	251	5	272	125	140	149	248
Jan. 8-----	322	63	394	64	343	---	21	188	181	78	132	381	602	294	69	237	224	238	84	138	305	250	306	---	4	353	154	280	159	257
Jan. 9-----	329	101	389	22	345	---	49	144	211	182	192	193	137	331	182	340	200	238	56	62	284	235	364	276	7	305	116	320	156	256
Jan. 10-----	---	116	329	87	294	---	26	181	247	101	213	395	136	349	197	320	194	251	78	153	309	162	359	185	8	332	253	245	128	244
Jan. 11-----	---	93	378	39	331	---	24	163	208	136	155	279	160	347	82	323	124	246	47	139	196	175	322	226	10	115	182	312	146	161
Jan. 12-----	---	91	250	41	251	---	29	186	253	31	231	405	437	372	198	307	153	63	16	44	57	224	379	239	(28)	63	168	275	75	256
Jan. 13-----	---	64	315	69	28	---	38	64	251	207	212	413	367	207	176	56	153	120	129	253	144	219	342	163	28	208	278	25	60	197
Jan. 14-----	346	74	337	16	114	---	43	194	55	165	48	293	370	309	163	197	27	181	34	170	---	159	377	282	17	207	231	226	141	268
Average-----	---	86	342	48	244	---	33	160	201	129	169	337	316	316	152	246	159	191	63	137	216	203	350	228	(14)	226	197	240	124	234
Jan. 15-----	351	75	207	55	243	---	42	184	17	67	3	406	476	256	55	185	69	220	87	146	275	108	356	278	19	297	177	227	120	231
Jan. 16-----	346	69	396	12	352	---	54	68	31	198	5	298	659	---	48	336	69	136	54	99	310	210	267	257	6	359	210	220	161	274
Jan. 17-----	289	101	397	136	75	---	51	51	82	64	45	135	171	355	47	342	103	31	119	63	316	236	231	287	14	333	99	325	---	262
Jan. 18-----	85	15	406	150	337	---	25	34	52	273	46	118	363	387	89	361	164	223	56	292	228	276	204	213	11	206	52	328	139	157
Jan. 19-----	240	68	360	110	232	---	31	36	182	263	153	174	488	387	106	291	215	162	89	233	130	156	111	288	9	26	220	310	189	95
Jan. 20-----	223	134	140	43	221	---	53	55	260	120	207	186	155	347	226	194	150	17	95	117	176	85	205	246	10	56	285	111	197	298
Jan. 21-----	359	84	401	52	206	---	20	222	111	256	72	421	306	84	211	29	56	65	174	252	305	64	282	115	47	383	89	35	154	300
Average-----	271	78	330	80	238	---	39	93	105	177	76	248	374	299	112	249	118	122	97	172	248	162	236	241	17	237	162	222	160	231
Jan. 22-----	367	79	242	59	285	---	33	52	45	258	22	60	358	343	39	347	58	329	114	191	356	177	245	341	23	300	239	229	60	298
Jan. 23-----	381	144	49	29	156	---	24	210	259	38	224	284	592	110	94	142	126	252	33	71	354	231	(405)	223	39	142	225	14	---	271
Jan. 24-----	329	120	165	66	25	---	82	56	207	66	186	439	510	289	110	145	28	433	363	36	58	250	91	391	109	57	328	40	116	338
Jan. 25-----	170	93	385	136	299	---	38	89	18	164	4	431	530	337	120	365	18	198	140	69	353	160	410	255	45	210	192	344	81	90
Jan. 26-----	311	126	417	224	97	---	38	194	24	68	8	431	551	330	93	185	147	90	196	165	351	173	334	165	57	353	134	196	46	110
Jan. 27-----	132	86	446	33	325	---	44	249	38	75	9	322	---	382	113	379	44	125	37	138	109	68	282	306	61	293	100	350	37	143
Jan. 28-----	390	141	437	93	360	---	66	220	40	43	19	292	---	386	197	388	57	173	71	173	320	114	426	156	61	77	247	345	---	201
Average-----	297	113	306	91	221	---	46	153	90	102	68	323	508	314	114	262	71	204	90	124	299	145	(356)	222	49	243	168	228	52	190
Jan. 29-----	367	151	194	40	49	4	46	107	74	43	57	437	---	290	225	69	73	321	---	40	320	125	413	286	25	338	216	33	116	190
Jan. 30-----	309	136	(440)	61	314	9	54	152	152	67	138	434	---	278	93	228	143	111	---	---	(309)	112	406	298	25	353	317	297	114	150
Jan. 31-----	408	152	425	42	239	6	139	177	280	175	229	444	---	366	99	378	178	76	---	230	366	124	439	342	17	371	300	345	243	337
Feb. 1-----	410	18	457	146	98	7	39	176	91	216	97	447	---	384	155	185	128	328	---	176	351	226	438	347	18	381	154	450	190	340
Feb. 2-----	382	71	472	118	271	11	33	266	162	175	144	440	---	144	124	404	134	215	---	55	(387)	169	407	293	21	390	83	457	222	335
Feb. 3-----	302	88	487	102	381	5	38	253	310	59	278	461	---	355	209	406	375	---	175	319	315	349	108	16	385	246	464	223	165	165
Feb. 4-----	193	173	480	131	423	6	33	143	233	203	188	203	---	444	293	426	256	154	---	117	334	279	388	167	22	132	84	481	129	170
Average-----	339	113	(422)	91	254	7	37	176	186	134	162	409	---	310	171	300	153	226	---	142	(341)	193	407	263	21	336	200	361	177	241

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

Values in parentheses are interpolated.

* Sun below horizon through Jan. 28.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

JANUARY 1958

	Grand Lake, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Madison, Wis.	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Phoenix, Ariz.	Portland, Me.	Raleigh, N. C.	Rapid City, S. Dak.	
1958																															
Jan. 1-----	134	117	142	224	---	319	52	353	---	228	252	117	260	304	300	293	144	3	130	326	281	30	32	264	278	---	300	6	57	(221)	
Jan. 2-----	139	126	259	263	181	348	101	378	---	(237)	295	343	258	297	286	270	216	14	163	55	326	281	218	157	260	291	---	303	196	264	(232)
Jan. 3-----	---	143	256	319	249	345	139	342	---	(229)	304	298	271	270	300	289	224	6	64	115	304	206	213	282	280	243	240	200	201	274	(222)
Jan. 4-----	165	69	265	318	138	354	110	240	---	(237)	305	303	193	282	318	(295)	206	13	85	320	299	230	227	212	289	240	295	201	298	(222)	
Jan. 5-----	155	116	278	296	214	355	99	63	---	217	310	313	257	283	313	(315)	114	10	71	215	254	236	223	252	292	158	319	174	309	(162)	
Jan. 6-----	163	150	243	117	181	244	194	---	---	180	267	251	263	146	195	189	135	---	60	241	209	214	177	247	291	320	320	181	289	(229)	
Jan. 7-----	---	151	101	321	130	323	35	387	---	238	317	190	263	307	310	317	220	4	90	92	117	30	20	263	205	343	325	38	38	(220)	
Average-----	151	125	221	266	182	327	104	294	---	(224)	293	259	252	270	291	(281)	180	8	95	195	256	166	150	254	261	261	261	307	142	218	(215)
Jan. 8-----	286	145	266	326	---	345	119	389	---	242	258	234	258	301	304	288	186	26	153	340	231	207	205	255	(214)	338	323	62	302	(233)	
Jan. 9-----	199	50	271	341	265	287	243	260	---	173	291	313	251	289	271	246	197	49	123	423	231	178	227	246	279	268	311	198	298	(215)	
Jan. 10-----	268	86	256	243	238	359	189	---	---	245	300	291	248	259	213	178	209	51	---	233	270	238	197	243	238	325	266	226	294	(222)	
Jan. 11-----	125	107	274	327	281	344	95	293	---	155	318	304	246	266	307	297	226	34	66	152	309	216	235	237	289	199	323	145	303	(148)	
Jan. 12-----	274	48	271	262	255	328	224	45	275	275	316	275	52	66	293	295	179	33	40	272	261	250	242	61	275	66	330	227	318	(221)	
Jan. 13-----	161	87	36	48	154	360	224	226	195	(205)	330	80	32	22	287	269	210	53	133	141	30	214	166	44	38	119	333	206	86	(74)	
Jan. 14-----	193	108	238	126	147	347	35	356	271	(205)	304	27	24	267	290	300	152	8	63	398	152	45	19	24	67	93	330	85	150	(148)	
Average-----	215	90	230	239	227	339	161	261	246	(214)	302	218	159	209	281	268	194	36	96	280	223	193	184	158	(200)	201	317	164	250	(180)	
Jan. 15-----	42	122	106	278	104	371	25	---	264	232	326	29	104	281	318	312	32	11	74	394	176	19	25	67	73	135	342	35	192	(205)	
Jan. 16-----	266	147	275	361	59	370	43	379	270	265	327	44	183	283	337	316	18	---	184	435	34	35	74	177	153	354	(311)	19	310	(253)	
Jan. 17-----	279	34	221	127	73	375	168	292	317	273	333	78	73	243	329	322	65	11	131	381	59	110	178	73	99	359	264	35	301	247	
Jan. 18-----	51	140	240	364	198	367	177	296	79	78	338	153	44	285	311	319	239	11	(94)	420	72	76	89	(48)	211	269	333	24	317	94	
Jan. 19-----	227	188	297	290	218	392	170	---	307	212	342	264	70	136	339	325	27	5	147	355	272	211	271	97	279	61	336	---	358	202	
Jan. 20-----	279	171	264	229	89	391	164	---	317	245	335	161	121	9	318	327	217	15	---	176	72	259	215	143	218	116	303	244	283	279	
Jan. 21-----	241	139	34	263	34	322	62	402	266	260	354	149	241	47	226	239	73	26	167	45	112	103	55	257	112	321	339	144	36	260	
Average-----	198	134	205	273	111	370	115	342	260	227	336	125	119	183	311	309	96	13	(133)	315	114	116	130	(123)	163	231	(318)	83	257	(220)	
Jan. 22-----	283	175	187	356	76	411	7	352	301	247	362	42	(269)	322	342	323	241	12	92	252	78	61	65	277	78	332	360	7	261	174	
Jan. 23-----	199	17	145	191	83	363	115	21	178	232	350	84	304	108	322	321	211	22	30	64	132	254	278	294	322	342	375	---	223	253	
Jan. 24-----	158	135	26	66	61	145	119	411	251	246	121	18	239	248	85	49	121	25	60	136	233	164	93	255	54	361	328	223	28	74	
Jan. 25-----	193	183	193	359	212	203	36	284	245	245	301	101	175	160	206	195	75	25	78	252	187	27	15	122	257	377	361	25	321	220	
Jan. 26-----	225	201	231	110	62	304	43	410	256	296	161	161	181	229	272	84	45	45	85	340	73	33	18	155	97	397	292	18	325	201	
Jan. 27-----	184	203	162	376	115	391	50	389	182	164	356	114	98	199	326	327	141	42	81	470	55	50	44	107	72	142	362	15	272	152	
Jan. 28-----	161	98	285	390	113	348	17	162	204	271	248	79	319	196	308	297	155	113	17	467	233	74	24	300	84	281	365	43	320	275	
Average-----	200	145	176	264	103	309	55	290	231	243	271	86	(227)	209	266	255	147	40	63	283	112	95	77	216	138	319	349	55	250	193	
Jan. 29-----	215	123	118	85	138	387	57	389	300	174	312	52	71	271	172	170	157	61	184	254	254	196	174	200	139	331	(317)	64	190	221	
Jan. 30-----	105	183	243	371	120	445	108	405	218	165	321	245	112	279	280	240	---	103	86	455	196	188	204	108	211	373	371	78	340	41	
Jan. 31-----	247	156	260	259	162	424	158	383	291	237	357	83	164	234	213	310	---	16	117	460	69	222	160	204	57	381	377	165	270	276	
Feb. 1-----	364	223	60	194	---	263	288	437	313	230	321	204	(75)	311	320	298	---	91	105	443	166	45	46	145	94	418	---	210	55	311	
Feb. 2-----	296	147	196	300	---	349	107	438	190	291	334	341	352	315	244	270	---	88	166	485	134	149	166	348	229	408	330	234	182	360	
Feb. 3-----	299	179	225	417	---	355	163	430	271	281	121	350	357	322	245	110	---	112	137	487	176	313	258	346	309	526	322	298	322	298	
Feb. 4-----	268	235	346	430	---	159	90	275	300	291	97	434	272	77	195	137	---	113	151	521	264	263	147	276	373	379	87	229	381	302	
Average-----	256	178	207	294	---	340	139	394	269	242	266	230	(200)	259	238	219	---	83	135	444	199	197	165	232	202	382	(273)	215	249	259	

Note.---Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

JANUARY 1958

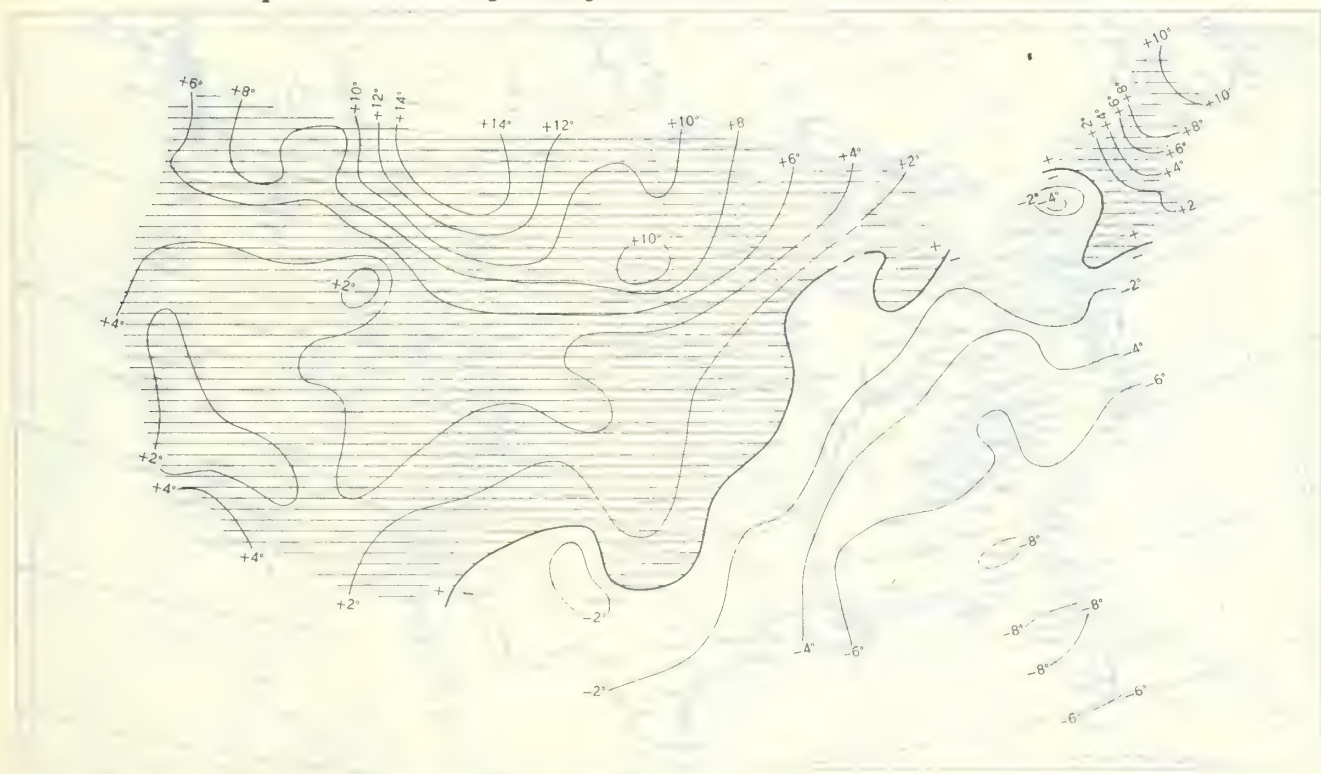
	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Saville, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Seattle, Wash. (U. of W.)	Shreveport, La.	Spokane, Wash.	State College, Pa.	Swan Island, W. I.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Silver Hill Obs.)	Aklavik, MacKenzie	Dartmouth, N. S.	Edmonton, Alberta	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Toronto, Ontario	Winnipeg, Manitoba
1958																									
Jan. 1-----	310	86	380	281	163	35	51	83	---	367	---	126	---	85	338	403	114	---	44	81	99	45	51	86	128
Jan. 2-----	272	203	392	301	142	238	182	81	---	364	---	207	338	63	329	484	275	---	23	61	94	111	177	177	119
Jan. 3-----	325	209	82	318	161	236	159	78	---	277	---	162	521	234	331	455	249	---	175	75	72	102	180	183	120
Jan. 4-----	326	151	53	321	122	273	203	121	---	350	---	250	(476)	334	---	455	264	---	135	90	120	136	185	154	98
Jan. 5-----	329	169	97	295	21	273	190	126	---	152	---	208	494	347	342	485	254	---	143	93	61	122	147	164	38
Jan. 6-----	222	179	281	173	34	247	166	69	---	103	---	198	(502)	158	337	358	263	---	170	75	57	51	62	58	126
Jan. 7-----	329	163	390	318	184	33	39	64	---	366	---	71	428	157	354	464	23	---	90	41	123	113	128	87	115
Average-----	302	166	240	287	118	191	141	89	---	283	---	175	(460)	197	339	440	206	---	112	74	90	97	133	130	106
Jan. 8-----	303	181	386	315	206	316	126	51	---	369	---	164	---	220	343	512	253	1	64	74	125	129	177	211	118
Jan. 9-----	204	178	251	225	117	326	207	42	---	301	---	246	---	432	346	526	264	---	72	95	121	142	190	173	96
Jan. 10-----	217	191	279	281	41	288	207	42	---	286	---	201	---	300	338	536	250	---	50	41	34	113	146	149	64
Jan. 11-----	314	175	369	318	188	275	168	62	---	190	---	132	---	414	357	541	267	---	75	136	114	192	208	127	77
Jan. 12-----	334	186	297	238	54	308	212	35	---	22	---	266	523	311	359	558	289	---	186	45	42	143	191	176	77
Jan. 13-----	277	30	384	330	87	229	186	79	---	65	---	195	---	107	370	451	115	1	183	80	82	141	91	164	26
Jan. 14-----	338	90	370	329	68	35	40	18	---	13	---	23	493	425	364	504	19	1	194	68	138	81	160	65	129
Average-----	284	147	334	291	109	254	164	44	---	226	---	175	---	316	354	518	208	5	118	68	97	123	164	164	91
Jan. 15-----	346	68	405	331	182	32	52	59	---	179	---	31	528	354	360	467	61	3	31	41	104	106	66	38	67
Jan. 16-----	347	99	359	330	173	80	47	11	---	311	---	65	420	401	313	411	---	---	11	69	85	57	72	77	114
Jan. 17-----	348	112	191	338	199	278	107	57	---	357	---	101	583	413	219	516	168	---	137	116	93	78	92	147	84
Jan. 18-----	363	115	203	349	218	78	96	118	---	299	---	109	506	448	369	520	289	---	137	116	93	78	145	121	54
Jan. 19-----	367	107	57	292	103	317	246	94	---	110	---	290	333	364	358	534	301	2	75	117	136	133	---	202	91
Jan. 20-----	337	111	218	351	129	258	215	38	---	16	---	147	(411)	157	380	550	287	3	193	102	138	178	171	76	114
Jan. 21-----	264	225	431	335	218	78	73	105	---	275	---	38	462	133	339	477	38	1	200	55	115	136	53	37	85
Average-----	339	120	266	332	175	160	119	69	---	221	---	112	(463)	324	334	496	191	1	97	87	105	109	100	100	87
Jan. 22-----	377	91	205	360	114	98	27	44	---	385	---	83	519	240	391	527	100	1	131	110	99	66	36	51	105
Jan. 23-----	356	94	49	(232)	164	295	225	---	---	71	---	45	239	614	40	404	485	273	4	25	68	136	141	237	182
Jan. 24-----	169	135	428	25	128	143	170	94	---	405	---	62	472	219	390	433	43	5	98	47	139	169	221	101	65
Jan. 25-----	232	100	425	60	57	15	137	139	---	204	---	82	511	428	399	495	47	5	60	71	146	110	101	38	80
Jan. 26-----	159	108	425	125	68	60	50	199	---	178	---	119	127	520	272	340	464	185	10	95	134	72	113	57	51
Jan. 27-----	373	182	408	249	106	54	53	55	---	398	---	139	(631)	493	347	277	265	14	49	128	70	143	69	96	108
Jan. 28-----	292	158	331	251	111	42	61	99	---	110	---	68	---	487	402	496	259	7	63	86	115	134	80	55	175
Average-----	280	124	325	(186)	107	101	89	105	---	283	---	108	(545)	311	382	454	167	7	74	92	111	125	114	82	108
Jan. 29-----	340	135	438	131	106	266	100	84	---	320	---	34	531	144	---	478	254	6	163	70	64	138	46	81	146
Jan. 30-----	211	248	428	294	98	155	117	70	---	411	---	112	151	466	379	388	181	13	50	99	68	90	82	68	191
Jan. 31-----	331	224	442	212	201	122	169	119	---	451	---	153	197	627	472	---	566	73	18	43	112	94	98	132	172
Feb. 1-----	330	143	446	108	180	54	237	184	---	436	---	162	308	543	450	399	541	10	105	131	94	138	134	254	162
Feb. 2-----	377	235	446	143	163	355	209	118	---	442	---	137	223	---	479	371	526	245	22	42	(120)	115	153	217	189
Feb. 3-----	133	244	331	293	225	321	240	123	---	109	---	176	---	485	249	596	188	25	134	83	75	107	122	138	143
Feb. 4-----	101	242	123	176	228	217	159	192	---	201	---	274	653	534	74	509	342	7	214	113	108	142	143	211	195
Average-----	260	210	379	194	172	213	176	127	---	381	---	210	564	420	296	542	194	14	107	(104)	88	124	119	153	174

Note.---Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, January 1958.



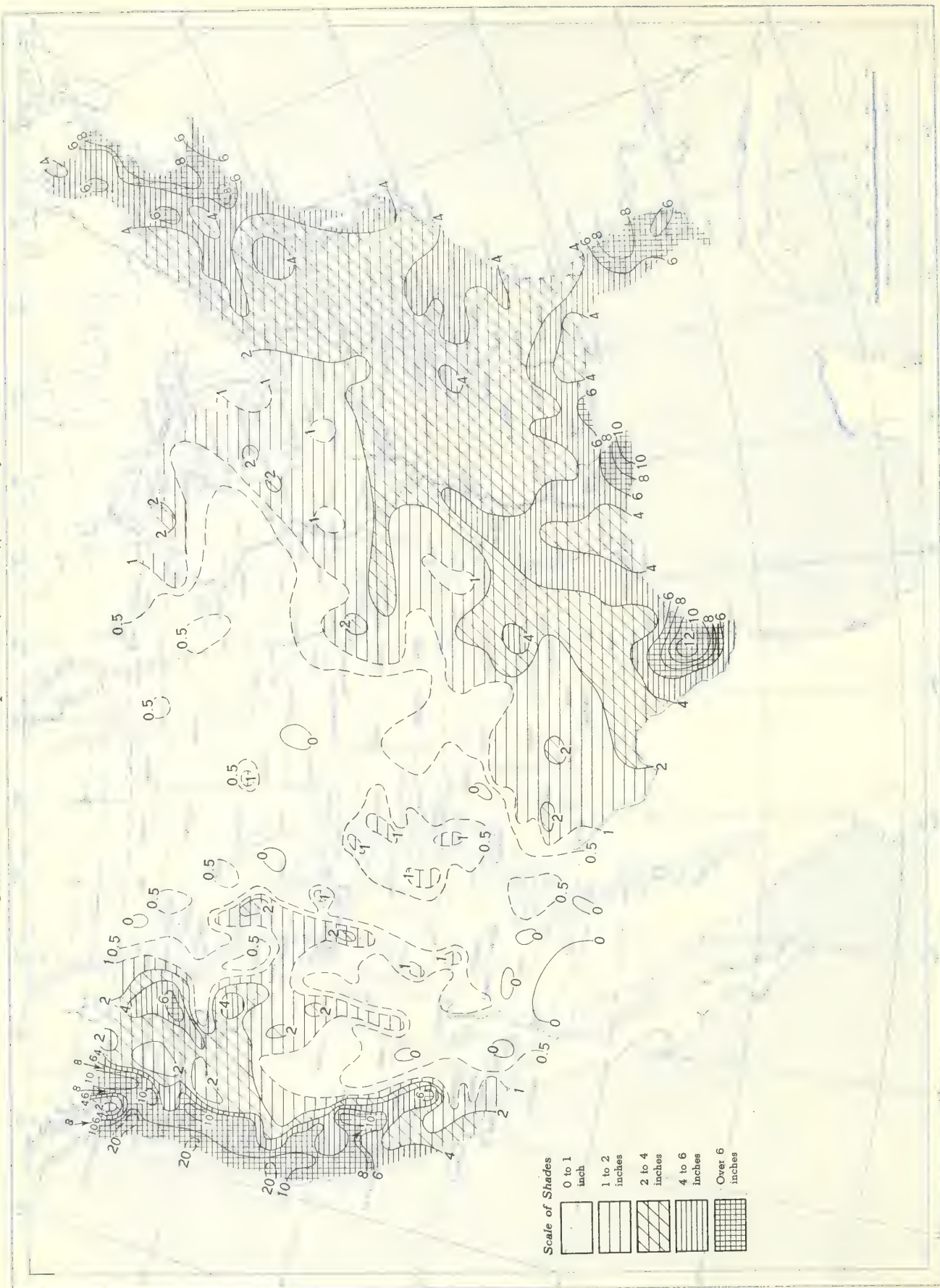
B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), January 1958.



A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), January 1958.



Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), January 1958.



B. Percentage of Normal Precipitation, January 1958.



Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), January 1958.

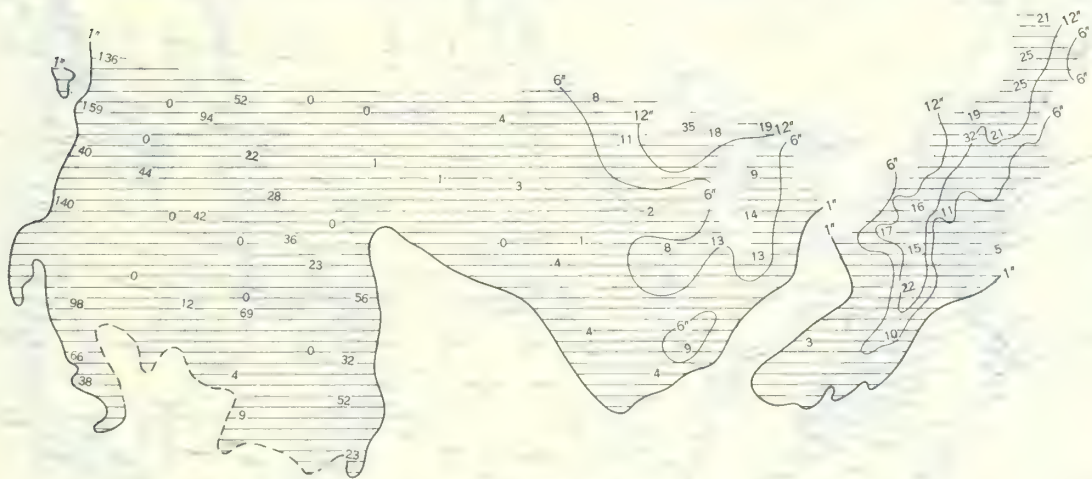


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, January 1958.

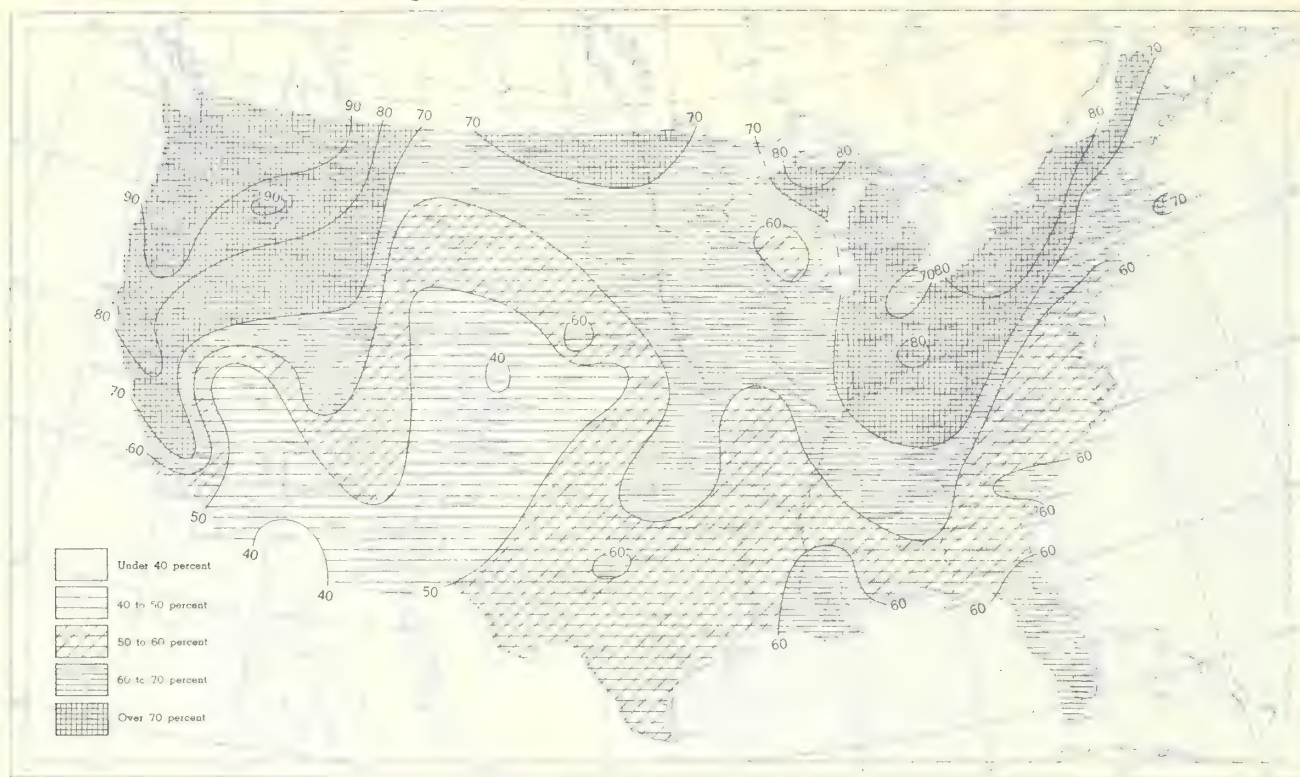


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., January 27, 1958.

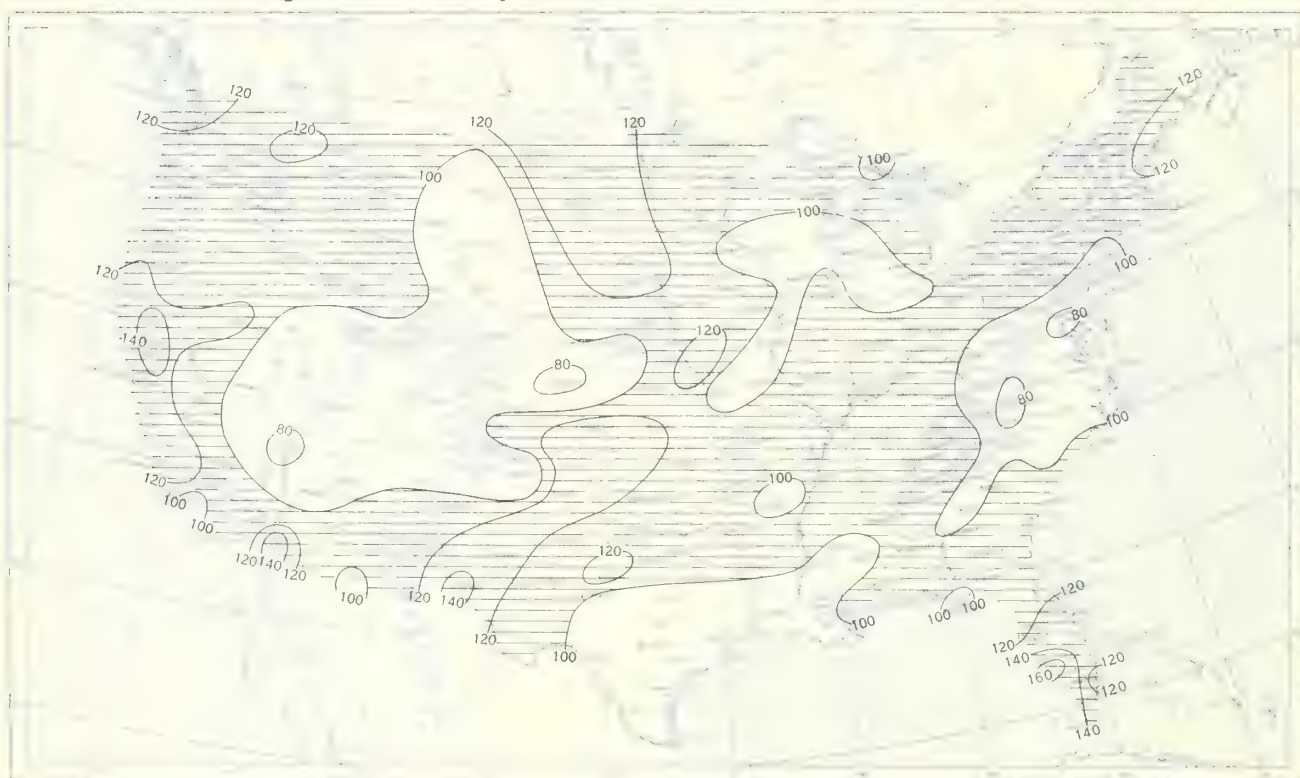


A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
 B. Shows depth currently on ground at 7:00 a. m. E. S. T., of the Monday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, January 1958.

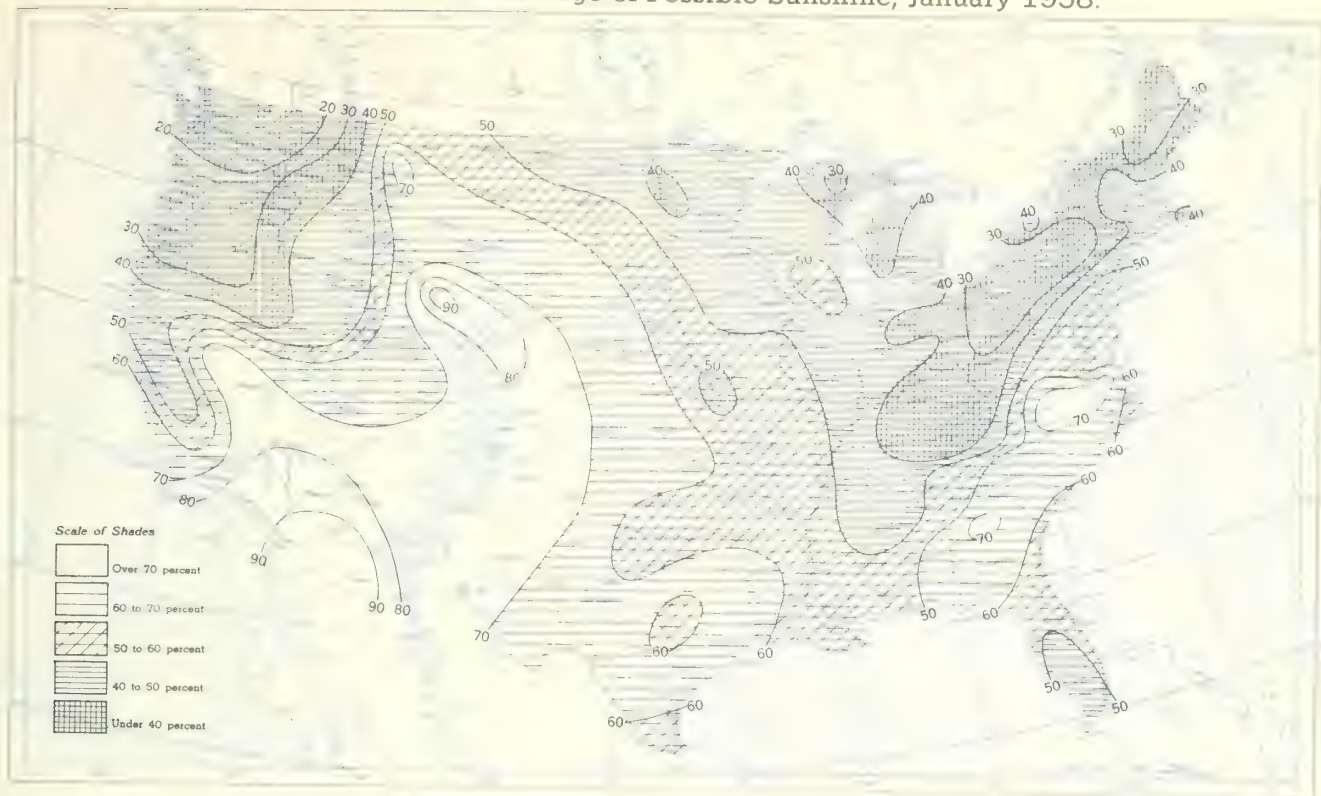


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, January 1958.

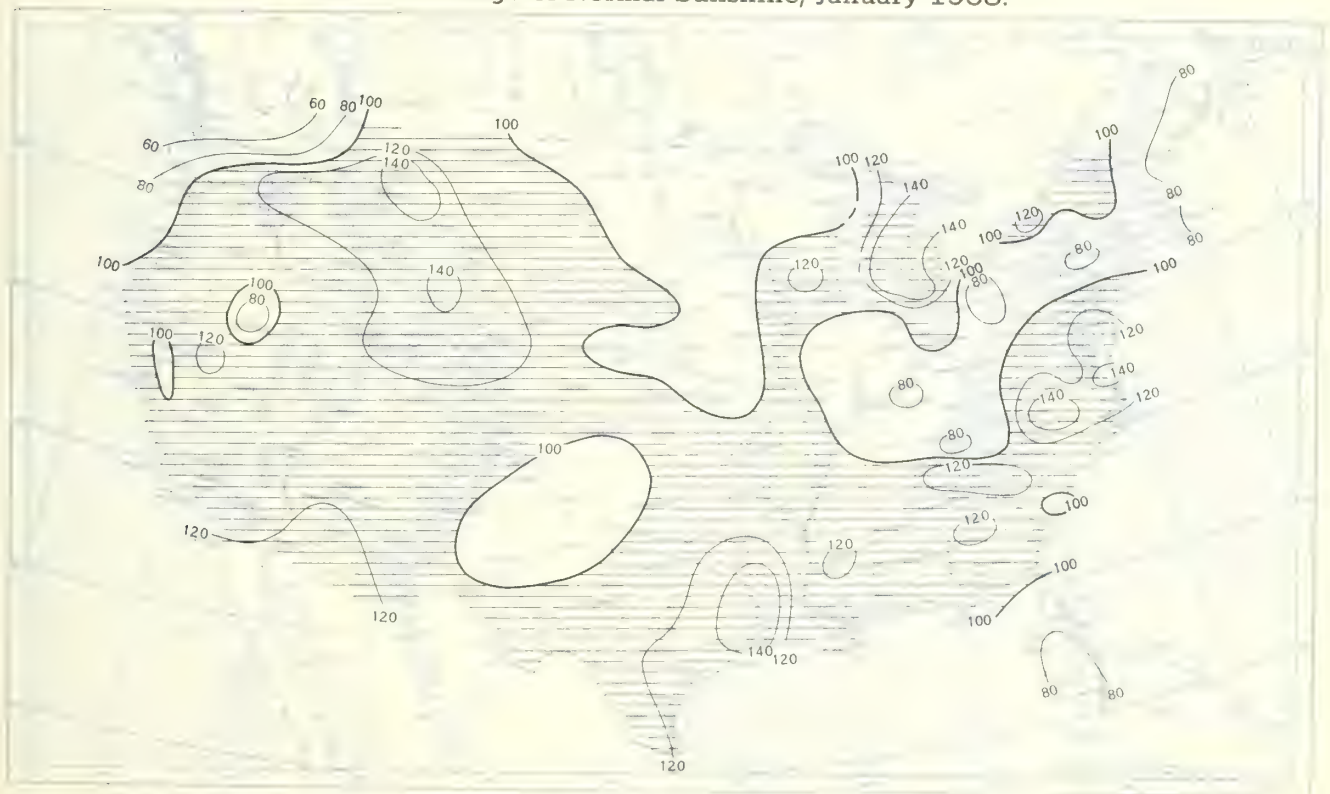


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, January 1958.



B. Percentage of Normal Sunshine, January 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, January 1958. Inset: Percentage of Mean Daily Solar Radiation, January 1958. (Mean based on period 1951-55.)

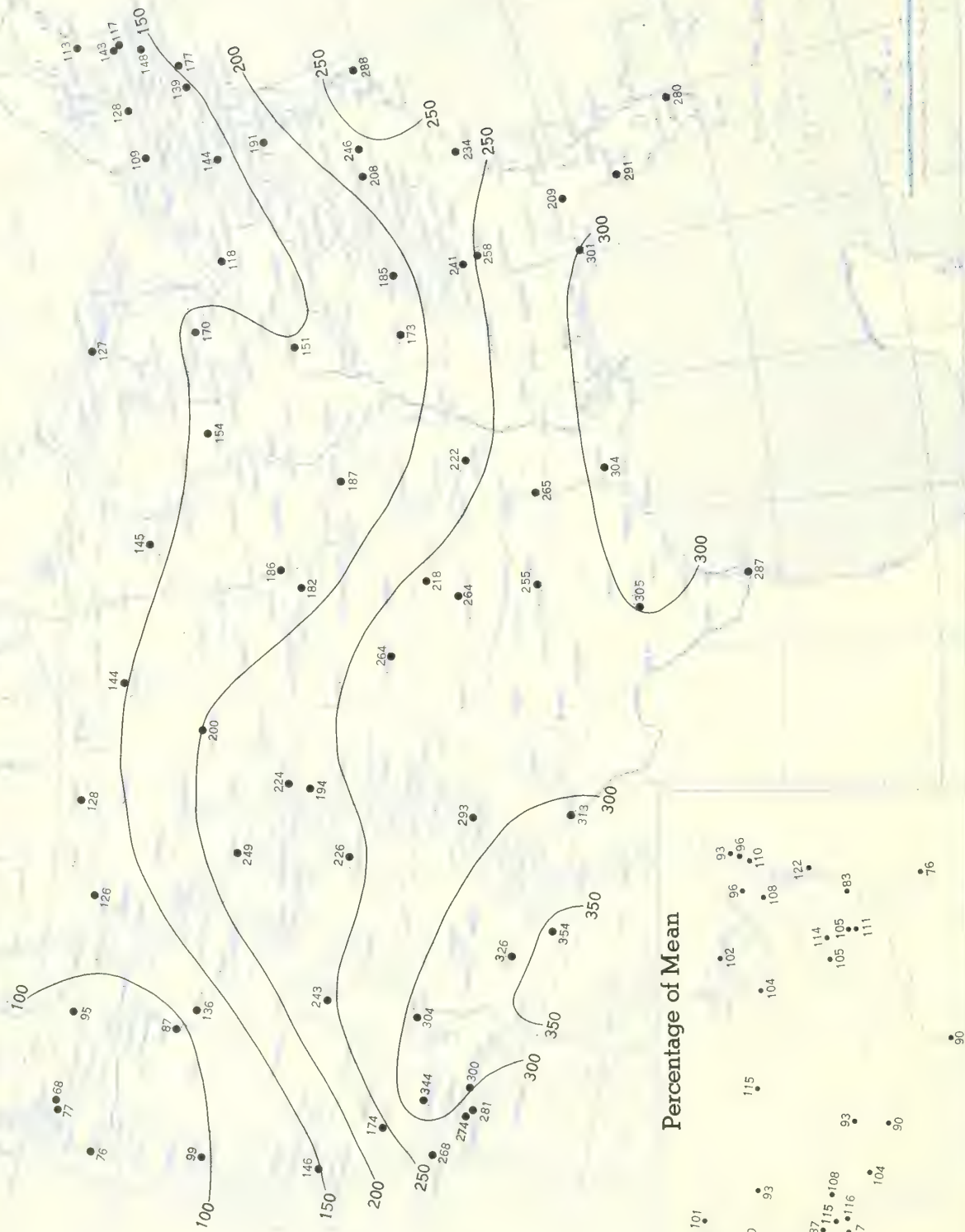


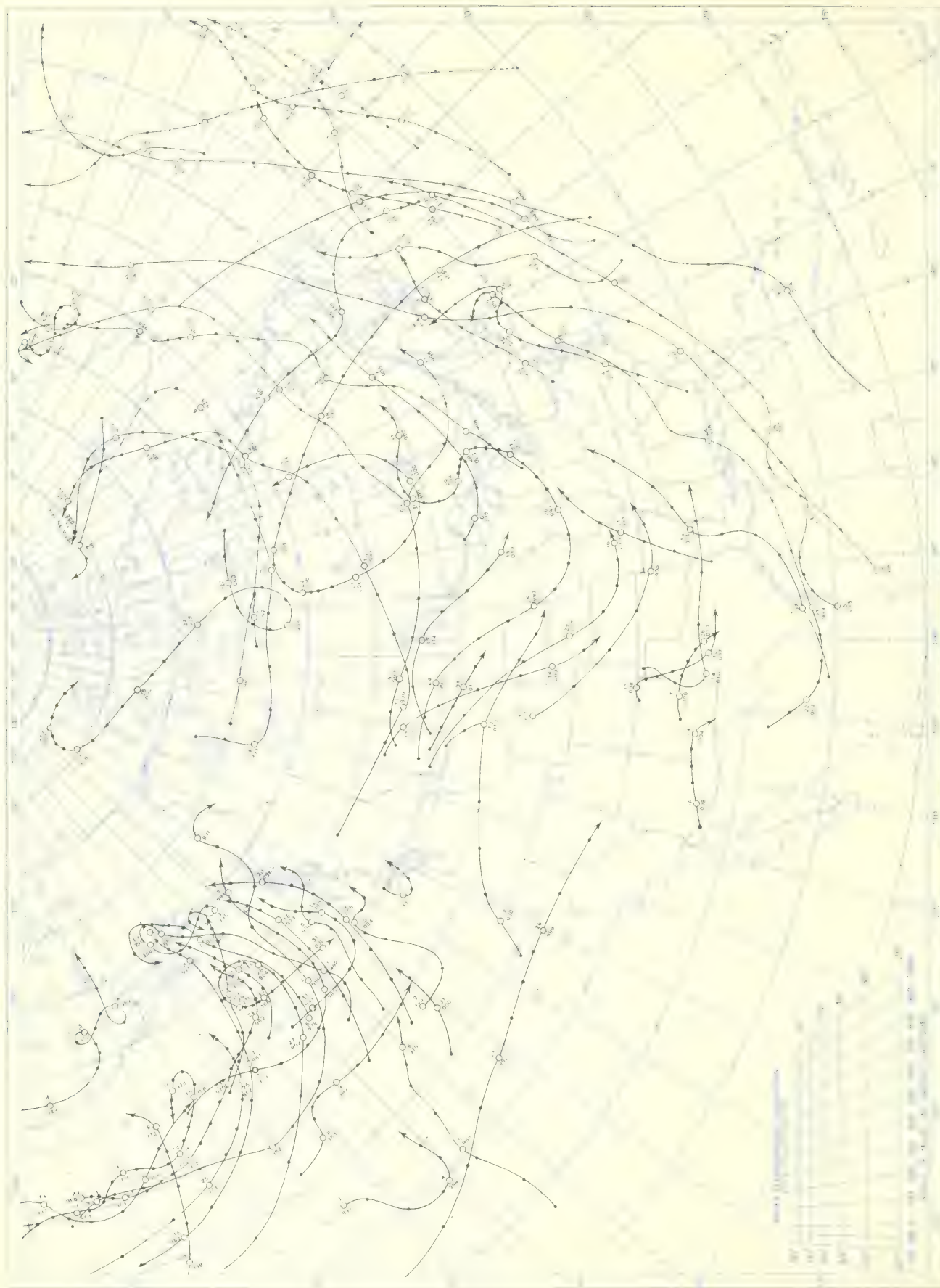
Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. ⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. The inset shows the percentage of the mean based on the period 1951-55.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, January 1958.



(Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, January 1958.



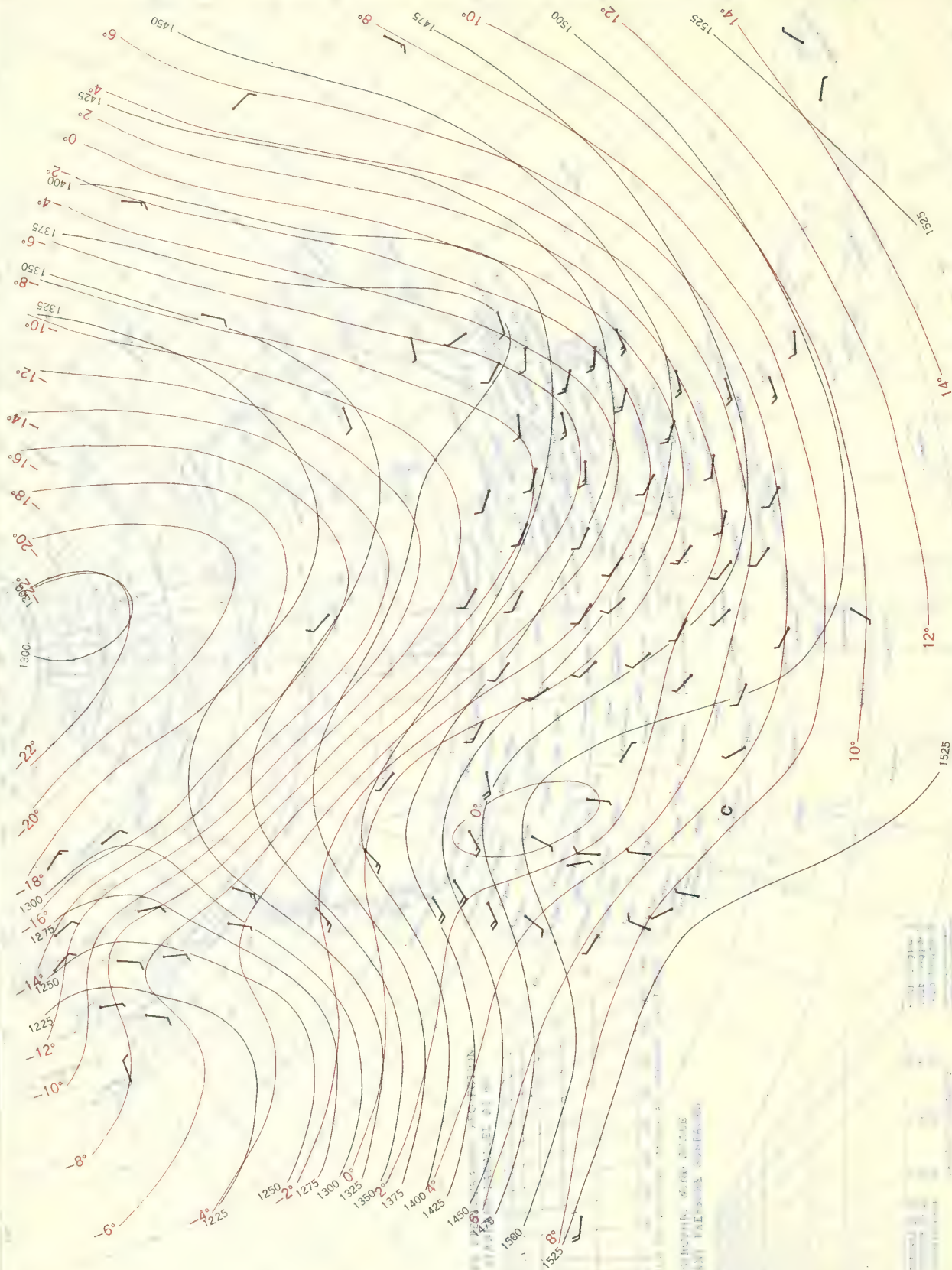
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, January 1958. Inset: Departure of Average Pressure (mb.) from Normal, January 1958.



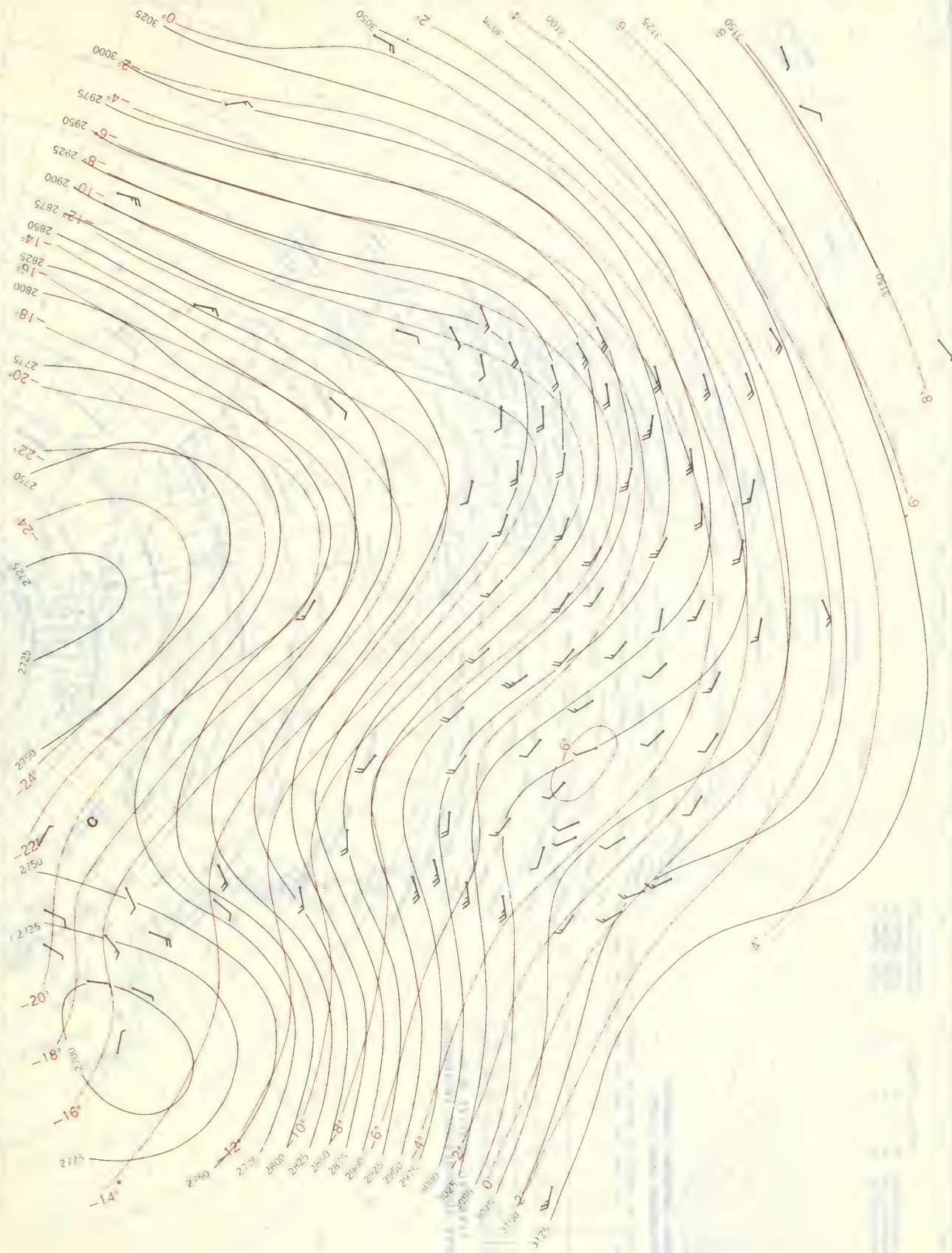
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, January 1958. Average Height and Temperature, and Resultant Winds.



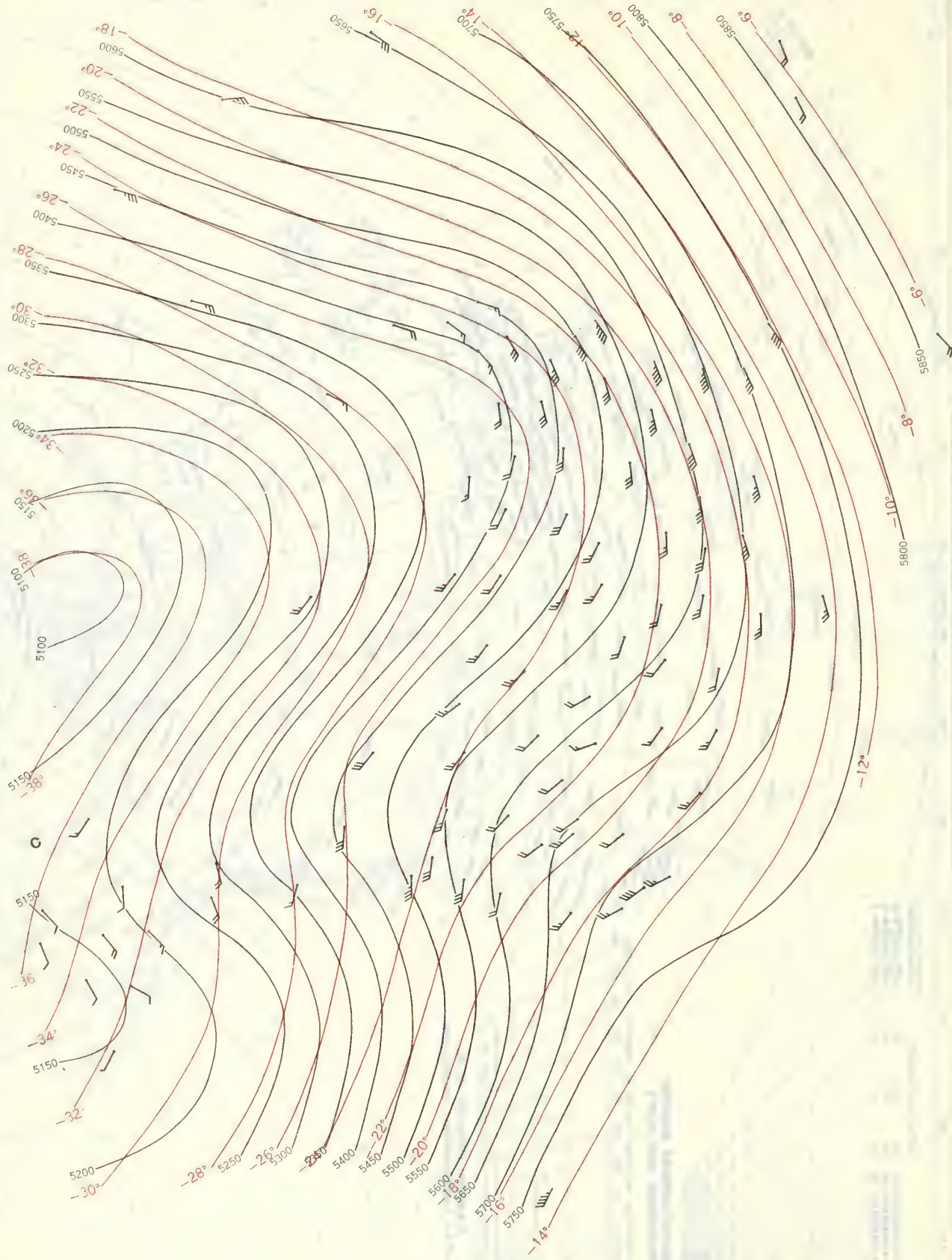
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, January 1958. Average Height and Temperature, and Resultant Winds.



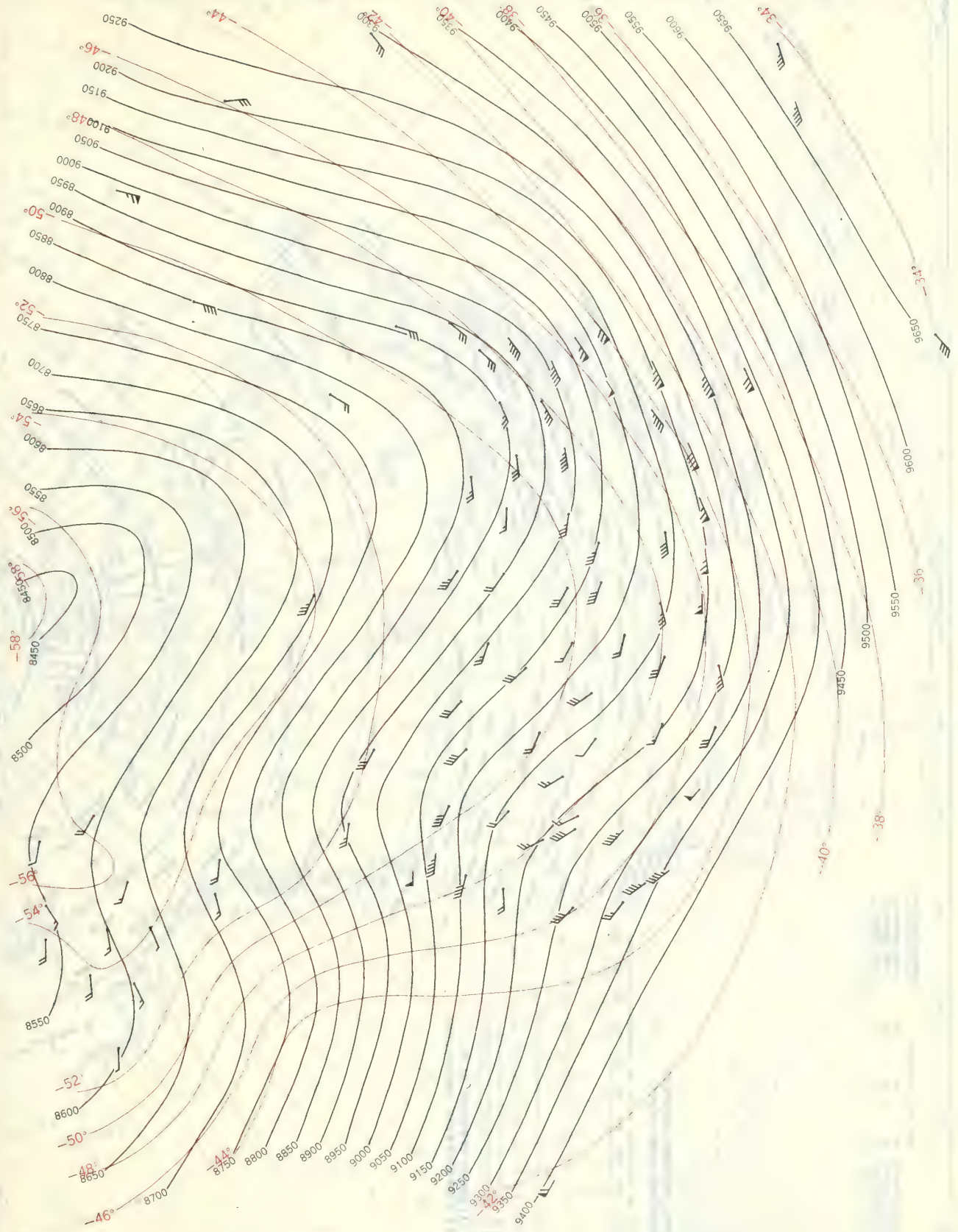
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, January 1958. Average Height and Temperature, and Resultant Winds.



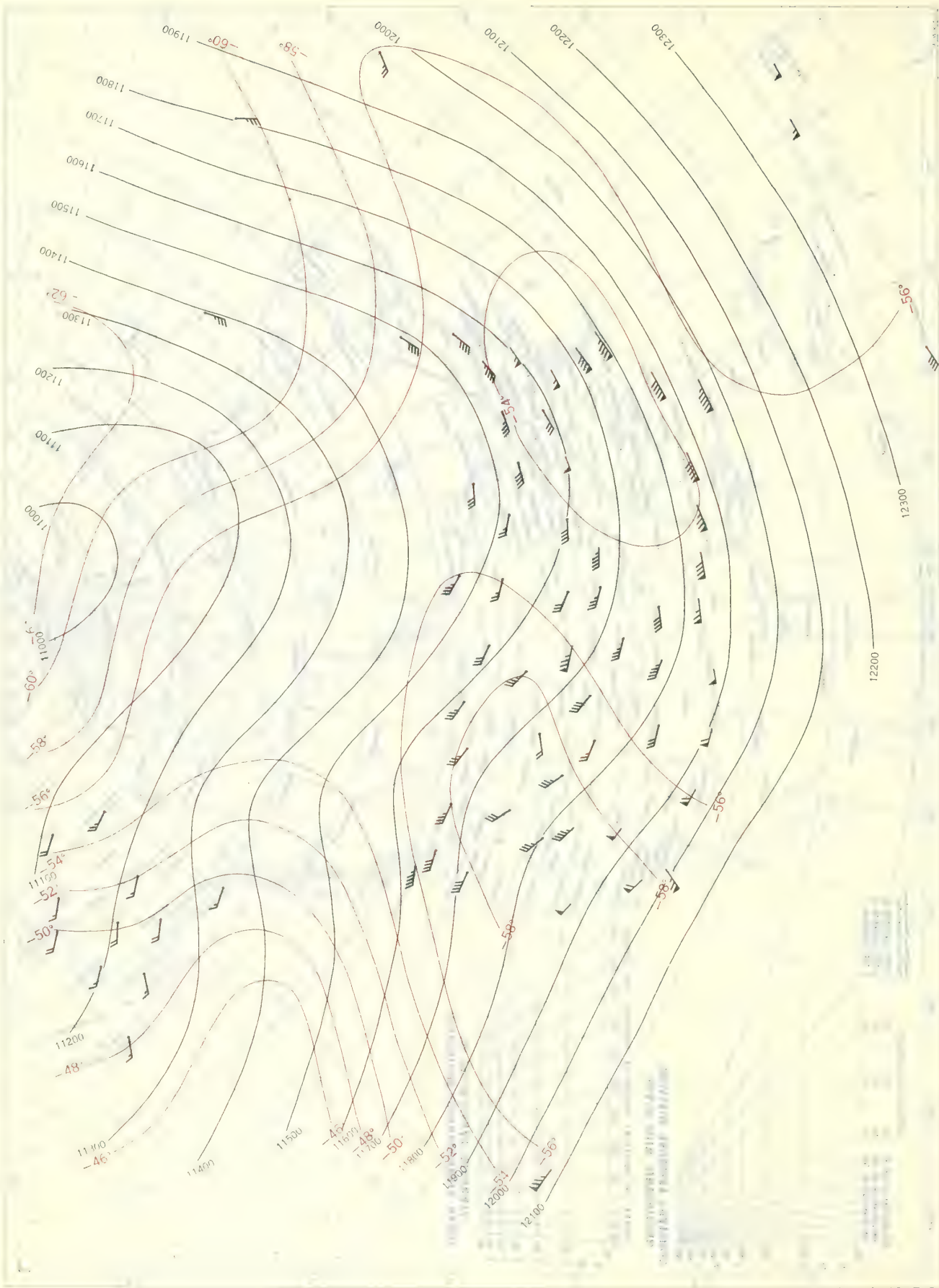
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, January 1958. Average Height and Temperature, and Resultant Winds.



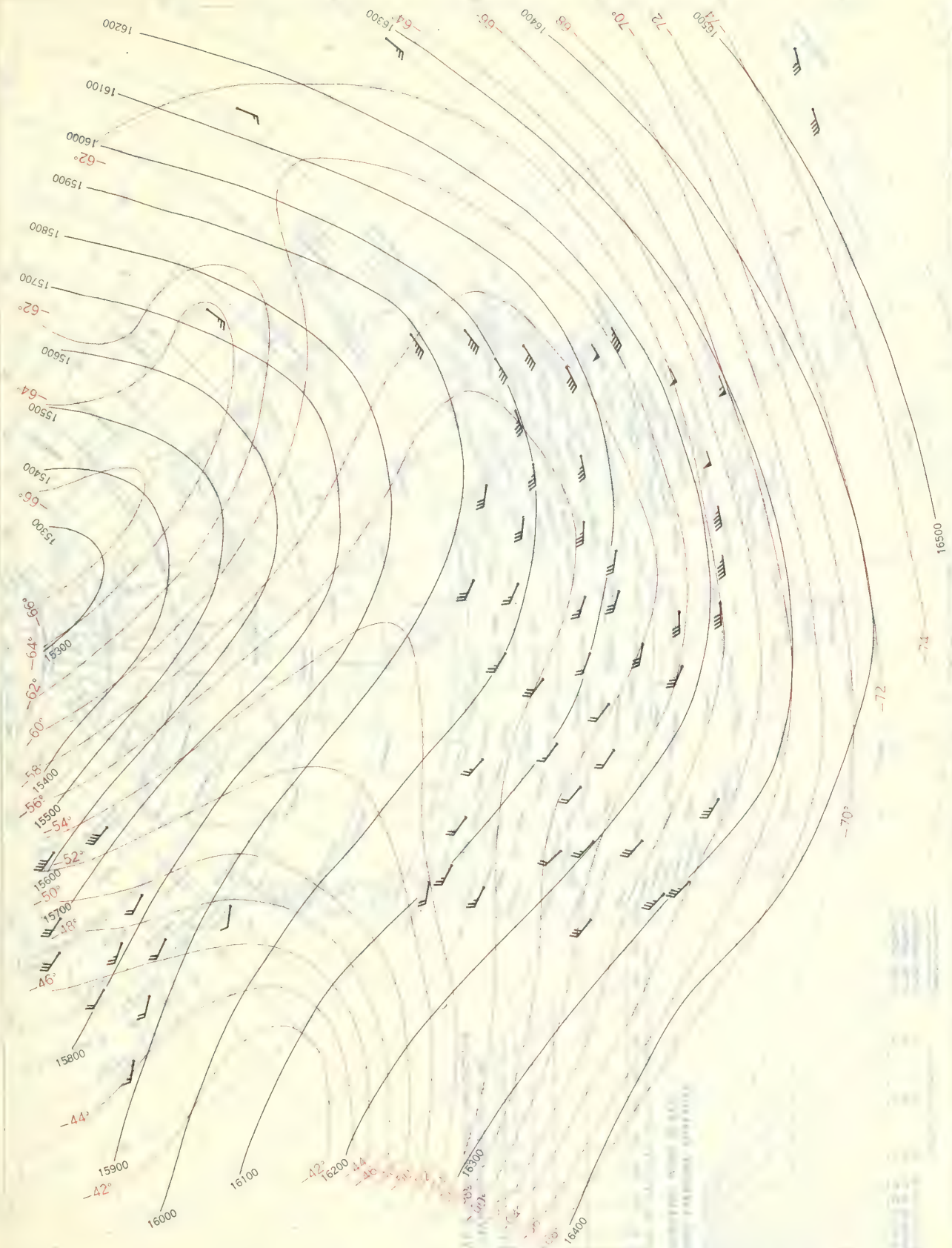
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, January 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, January 1958. Average Height and Temperature, and Resultant Winds.



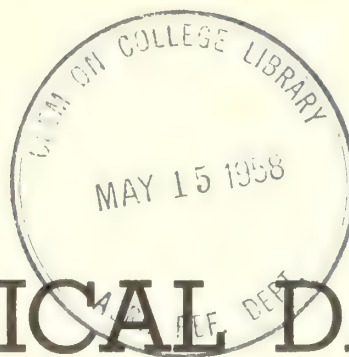
See Chart XII for explanation of map.

30.511 1/2
U. S. DEPARTMENT OF COMMERCE

SINCLAIR WEEKS, Secretary

WEATHER BUREAU

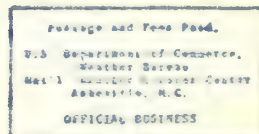
F. W. REICHELDERFER, Chief



CLIMATOLOGICAL DATA

NATIONAL SUMMARY

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FEBRUARY 1958

Volume 9 No. 2



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CHARTS I-XVII

NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 2

FEBRUARY 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

The coldest month in Florida and the snowiest in the Northeast were the two outstanding weather features of the month. Cold, wind, and snow combined on the 16th to the 18th to give the eastern Seaboard States the severest period of winter weather in many years. Temperatures averaged below normal everywhere east of the Rockies, while temperatures in the Far West were relatively mild for the third straight month. The month was unusually dry in the Ohio and upper Mississippi Valleys and Great Lakes region, but elsewhere precipitation was normal to much above, with some heavy flooding in southern Texas, and minor overflows in northern California, and the Northeast.

TEMPERATURE.--Temperatures for the month averaged below normal east of the Rockies and above normal in the Far West, with greatest departures ranging from 12° below normal in the Southeast to 12° above in the Pacific Northwest.

This was the coldest February on record in most of Florida and parts of adjacent states, the coldest since 1905 in much of the remainder of the area south of the Ohio River, and the coldest since 1936 at widely scattered points in more northerly areas such as Oklahoma City, Okla., Columbia, Mo., Waterloo, Iowa, Peoria, Ill., Binghamton, N. Y., and Hartford, Conn. It was not unusually cold, however, in areas near the Canadian Border.

In contrast, this was among the warmest Februaries on record throughout the Far West. It was the warmest of record at Eureka, Calif. (53.9°), the second warmest at San Diego and Los Angeles, Calif., and Yakima, Wash., the warmest since 1900 at Pendleton, Oreg., and the warmest since 1934 at Boise, Idaho.

This pattern of above normal temperatures in the Far West and below east of the Rockies persisted through the first 3 weeks, after which it was reversed. Extreme temperatures set very few new records considering the magnitude of the monthly departures. The only notable low temperature extreme was -23° recorded at Mt. Mitchell, N. C., on the 17th, which set a new alltime record for that State. New high temperature records included 66.1° for Pendleton, Oreg., on the 18th, 60° for Devils Lake, N. Dak., on the 25th; and on the 22nd 67° and 62° equaled previous highs for Boise and Pocatello, Idaho, respectively.

The persistency of cold weather in the South during the first 3 weeks of the month is well demonstrated by the following examples: new records for the number of days with freezing were set at Tallahassee and Jacksonville, Fla., with 16 and 13 days respectively. Birmingham, Ala., had 16 consecutive days on which the temperature fell below freezing, and at Parkersburg, W. Va., the temperature did not rise above 32° from 9 a.m. on the 7th to 3 p.m. on the 20th.

Falling temperatures the first part of the month east of the Rockies reached their lowest levels in most areas about the 17th or 18th when subzero readings were reported as far south as northern portions of Arkansas, Alabama, and Georgia, and freezing extended deep into Texas and Florida.

In the latter State extensive freezes also occurred on the 4th, 5th, and 14th.

In much of Florida February was the coldest month on record. Florida's winter also was the coldest in parts of the State, among the wettest, and perhaps the worst for agriculture in the history of the State. The tourist business, an important factor of the State's economy, also was adversely affected.

PRECIPITATION.--Precipitation was less than 50 percent of normal in the middle and upper Mississippi and lower Ohio Valleys, and Lakes region. In Wisconsin and some adjacent areas it was less than 25 percent. At Madison, Wis., 0.08 inch was the least amount measured there for February since records began in 1869. Waterloo, Iowa, Escanaba, Mich., and Cincinnati, Ohio, also had their driest February on record.

In the remainder of the country, precipitation ranged from about normal to much above. Monthly amounts were 200 percent or more of normal in most sections from the northern Great Plains to the Pacific coast, coastal areas of California, and the southwestern half of Texas. Brownsville, Tex., and Binghamton, N. Y., measured 10.25 and 4.46 inches, respectively, for their wettest Februaries on record, and at many other widely scattered stations monthly totals were among the five greatest of record. Among these were Spokane, Wash., Red Bluff, Calif., and Yuma, Ariz.

A steady downpour of rain over southern Texas on the 21st, 22d, and 23d totaled 4 to 6 inches over a large area from the lower Rio Grande Valley northward into the central part of the State where streams were overflowing lowlands by the 23d. The highest flood stage of record, 24.8 feet, occurred on the Nueces River at Tilden, exceeding the previous record of 23.7 feet set in June 1935. Several houses were flooded in Victoria. Lowlands in this area remained flooded during the remainder of the month. Considerable light flooding occurred in eastern Nebraska and northern Missouri resulting from heavy precipitation on frozen ground on the 27th. Some flooding also occurred the last week in New Jersey, eastern Pennsylvania, southeastern New York, and southern New England.

Rainfall was frequent along the Pacific coast and occasionally heavy when frontal systems moved in from the Pacific. Most of the precipitation in the eastern United States fell during the passage of storms up the Atlantic coast on the 7th to 9th and 15th to 17th. In northern areas much of this precipitation was in the form of snow.

SNOW.--East of the Rockies, three major snowstorms occurred. During the first week a midwestern storm, after leaving 4 to 10 inches of snow in portions of Missouri and Illinois, produced up to a foot or more in the central Appalachians, 7 to 10 along the New Jersey coast, and 6 to 7 inches in southeastern Massachusetts.

A coastal storm from the 7th to 9th dumped 10 inches of additional snow in eastern portions of Pennsylvania and New York State, and up to 18 inches in northern New England.

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

FEBRUARY 1958

Another coastal storm from the 15th to 17th brought heavy snow to the entire Northeast, with amounts exceeding a foot in many areas. During the storm Washington, D. C., measured 14 inches and Baltimore, Md., 15.5 inches. Up to 30 inches were reported from eastern Pennsylvania, 20 inches from eastern New York State, and 10 to 20 inches in most of New England. Boston, Mass., had a fall of 19.4 inches which set new records there for 24 hours and a single storm. The accumulation at Burlington, Vt., after this storm, 33 inches, was the deepest ever measured there, and 34.3 inches for the month broke the alltime record of 33.7 inches set in the preceding January. High winds and low temperatures created blizzard conditions. Roads were blocked throughout the Northeast, and many rural areas were isolated.

The month closed with a raging blizzard in the northern Plains, and a storm off the North Atlantic coast brought additional moderate to heavy snow to the Northeast during the closing days of the month.

On February 12, snow blanketed the Gulf coast with 1 to 3 inches from southern Texas to northern Florida. Tallahassee, Fla., measured 2.8 inches on the morning of the 13th, an alltime record there.

February was one of the snowiest months of record in much of the South and East. February totals

in Texas set new records at Port Arthur, (2.9 inches) and San Antonio (1.2 inches). Buffalo, Syracuse, and Rochester, N. Y., measured their greatest snowfalls for any month of record, 54.2, 72.6, and 64.8 inches, respectively.

SEVERE STORMS.--High winds and heavy snowfall on several occasions in northern areas east of the Rockies were responsible for the greatest portion of the month's storm damage. Losses consisting of downed trees and power and communication lines added to snow removal costs amounted to many millions of dollars. In the northern Great Plains and Maine during the closing days of the month, glaze was a contributing factor to the overall losses.

Windstorms, affecting California from the 2d to the 5th, western Oregon from the 14th to the 16th, and all three Pacific States on the 24th and 25th, were responsible for several deaths and injuries. They caused widespread minor damage and some locally heavy damage which altogether amounted to several million dollars.

An outbreak of tornadoes occurred in the South on the 26th. Thirteen persons were killed, 80 injured, and property losses amounted to about a million dollars in Mississippi and many thousands in the vicinity of Savannah, Tenn.

CONDENSED CLIMATOLOGICAL SUMMARY

FEBRUARY 1958

Section	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least	
		°F			°F			In.		In.	
Alabama	Geneva	78	27+	3 Stations	-12	19+	Melvin	8.17	Andalusia	2.38	
Arizona	2 Stations	86	18+	Maverick	-11	28	Junipine	5.77	Copper Mine TP	.26	
Arkansas	7 Stations	75	25+	Blytheville	-3	17	Pocahontas 1	4.79	Perryville	.65	
California	3 Stations	85	24+	White Mountain 1	-9	27	Cazadero	40.49	Cow Creek	.26	
Colorado	Holly	78	24	Taylor Park	-30	2	Wolf Creek Pass 4W	4.95	Buena Vista	.00	
Connecticut	Danbury	52	24	Wigwam Reservoir	-18	18	Mead Pond Reservoir	5.11	Putnam	1.44	
Delaware	Lewes	62	28	4 Stations	4	17	Lewes	5.28	Dover	2.87	
Florida	Hypoluxo	90	28	DeFuniak Springs	11	18	Deland	8.11	Clewiston	.31	
Georgia	2 Stations	81	27	Blairsville Exp. Sta.	-6	17	Monroe	7.90	Adairsville	2.07	
Idaho	Grand View	73	23	Obsidian 2NNW	-17	28	Burke 2ENE	5.77	Idaho Falls 42NW WB	.22	
Illinois	3 Stations	71	26+	Galesburg	-19	17	Chester	2.04	Kirkwood 3W	.05	
Indiana	4 Stations	70	25+	2 Stations	-11	17+	La Porte	5.94	Columbus	.10	
Iowa	Sibley	67	23	Atlantic 1NE	-34	17	Sioux City 4N	1.66	6 Stations	T	
Kansas	4 Stations	79	23	Sabetha Lake	-13	16	Covert	3.29	Actna 2WNW	.10	
Kentucky	Benton 2	73	26	Mammoth Cave Park	-10	17	Hindman Settlement School	4.77	Grant Dam 38	.53	
Louisiana	Angola	81	27	3 Stations	13	13	Grand Isle LB Sta.	8.10	Hosston	1.75	
Maine	Hiram 2S	48	26	Cupsuptic Storehouse	-29	11	The Forks	5.39	Portland WB Airport	1.72	
Maryland	Ocean City	69	25	Oakland 1SE	-17	12	Prince Frederick	5.80	Picardy	1.44	
Massachusetts	3 Stations	49	28+	Tully Dam	-27	18	Boston WB Airport	5.87	South Egremont	1.83	
Michigan	Ontonagon	61	26	Kenton US Forest	-42	16	Ludington 4SE	D3.88	Spalding	.05	
Minnesota	Pipestone	67	24	Big Falls Ranger Sta.	-38	16	Dawson	1.33	Numerous	T	
Mississippi	Picayune 4S	79	6	Corinth	-5	18	Shubuta	7.75	Abbeville	1.41	
Missouri	5 Stations	75	25+	Princeton	-24	17	Bernie	3.54	Kahoka	.14	
Montana	Lame Deer	72	22	2 Stations	-35	15	Hungry Horse Dam	4.48	Lima	.04	
Nebraska	Beaver City	80	23	Walthill	-25	17	Valparaiso	3.12	Lamar	.21	
Nevada	North Las Vegas DOX	81	23+	Mountain City RS	-5	1	Glenbrook	4.36	Hawthorne NAD	.13	
New Hampshire	2 Stations	49	27+	2 Stations	-31	18	Mount Washington	9.34	Lakeport 2	.91	
New Jersey	Belleplain	60	28	Layton 3NW	-17	11	Ways Landing	8.22	Sussex 3N	2.44	
New Mexico	Artesia	80	17	Gavilan	-19	1	Bateman Ranch	3.85	2 Stations	.00	
New York	2 Stations	57	25	Salem	-31	18	De Ruyter 4N	9.80	Smiths Basin	.51	
North Carolina	do	76	26+	Brevard	-20	17	Wayah Bald	9.32	Oriental	2.20	
North Dakota	Fort Yates	70	26	Willow City	-39	16+	Nortonville	2.75	3 Stations	.09	
Ohio	Milford	69	24	Charles Mill Dam	-16	17	Proctorville Dam 27	2.82	Greenville Sewage Plant	.27	
Oklahoma	Altus Dam	79	25	Wichita Mt Wild Life	0	13	Stilwell	3.44	Fargo	.06	
Oregon	2 Stations	71	22+	Chemult	1	28	Brookings	24.76	Enterprise	.56	
Pennsylvania	New Stanton	63	28	3 Stations	-20	13+	Pimple Hill	6.18	Bakerstown 3WNW	.16	
Rhode Island	Newport	48	25	Kingston	-7	18	Block Island WB AP	4.44	Providence WB Airport	2.95	
South Carolina	3 Stations	81	27+	Caesars Head	-6	17	Sassafras Mountain	7.12	Charleston WB City	2.40	
South Dakota	Bridgewater	74	23	Pollock	-37	16	Deadwood	2.21	Interior 3NE	.13	
Tennessee	3 Stations	73	24	Waynesboro	-18	18+	Haw Knob	9.53	Duck Town	.37	
Texas	McAllen	91	26	Quanah SSE	1	13	Brownsville WB AP	10.25	Coldwater	.11	
Utah	Zion NP	77	22	Scofield Dam	-24	1	Alta	12.90	Fruita	T	
Vermont	Readsboro 1SSE	50	27	Vernon	-33	18	Manchester Center	4.94	Cornwall	1.64	
Virginia	Boykins	74	25	2 Stations	-14	18+	Olinger	5.41	Pulaski CAA AP	1.46	
Washington	Dayton	71	21	Bumping Lake	10	28	Blue Glacier	29.14	Anatone	.79	
West Virginia	Williamson	71	25	Birch River 6SSW	-17	11	Canaan Valley	8.54	New Cumberland Dam 9	.90	
Wisconsin	3 Stations	61	26	Gordon 2ESE	-40	17+	Gurney	1.39	Numerous	T	
Wyoming	Metz Ranch	75	24	Rockypoint 2NE	-25	12	2 Stations	3.51	Shoshoni	.00	
Puerto Rico	Dos Bocas	93	16	Cayey	51	15	Quebradillas	5.96	3 Stations	.00	

+ And also on a later date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of new snowfall.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

FEBRUARY 1958

[illegible]

See footnotes at end of table

CLIMATOLOGICAL DATA

FEBRUARY 1958

State and station	Elevation (ground)	Pressure			Temperature										Precipitation							Wind			No. of days									
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	0.1 inch or more	No. of days With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	to sunset							
																				In	In						M	M	Direction	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
IOWA	Fl.	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	In.	In.	In.	In.	In.	In.	In.	In.	M	M	M	M	0-3	4-7	8-10	0-10	%				
Burlington	694	992.2	1019.2	27	8	17.5	-10.5	59	26	-18	17	0	26	10	73	0.39	-1.02	0.25	4	0	1.6	6	11.9	NW	28	NE	27	15	4	9	4.0	79		
Des Moines	948	987.8	1020.9	26	7	16.9	-9.1	58	25	-20	17	0	24	11	78	.61	-.47	.32	6	0	3.0	6	12.5	NW	36	NE	27	13	6	9	4.8	69		
Dubuque	1065	991.5	1018.2	24	7	15.4	-7.2	56	26	-13	17	0	25	7	67	.17	-.94	.11	4	0	1.2	8	---	---	---	---	16	7	5	3.7	---			
Sioux City	1094	977.3	1020.9	28	8	17.9	-5.3	57	25	-19	16	0	26	10	69	1.62	-.87	1.36	6	0	2.2	4	14.0	NW	37	NW	1	9	9	10	5.5	69		
Waterloo	870	-----	-----	25	4	14.8	-7.7	57	26	-18	17	0	26	10	68	.04	-.97	.02	3	0	.6	4	13.8	---	---	---	---	---	---	---	---	---		
KANSAS																																		
Concordia (U)	1375	968.2	-----	34	18	26.0	-6.9	69	23	2	12	0	24	---	71	1.52	-.67	.88	12	1	8.3	3	7.6	SE	26	NW	27	7	4	17	6.8	46		
Dodge City	2594	927.2	1018.1	41	22	31.4	-3.6	74	23	2	12	0	23	24	76	.42	-.36	.17	7	1	2.8	1	15.5	SSE	57	NW	26	8	2	18	7.0	47		
Goodland	3645	886.2	1016.5	41	18	29.9	-.3	73	23	-2	12	0	26	22	77	.77	-.29	.36	9	0	9.2	5	12.3	SSE	*40	NNW	26	7	3	18	7.1	---		
Topeka	877	983.1	1020.8	36	17	26.2	-7.2	70	25	-2	16	0	26	17	69	1.13	-.16	.74	6	0	1.9	3	11.4	N	34	SE	26	9	2	17	6.8	50		
Wichita	1321	968.8	1019.2	38	21	29.7	-7.5	70	25	5	13	0	23	21	71	1.03	-.05	.67	8	2	3.3	2	13.9	SSE	48	NW	27	5	2	21	8.0	41		
KENTUCKY																																		
Lexington	979	979.6	1016.8	34	17	25.8	-10.2	62	24	-6	17	0	23	18	74	1.77	-1.73	.74	10	0	6.9	3	14.0	WSW	---	---	---	10	7	11	5.9	---		
Louisville	474	997.1	1017.1	37	18	27.6	-9.6	66	24	-3	17	0	23	18	68	1.36	-1.63	.51	7	0	3.4	2	12.9	NW	35	SW	27	8	9	11	5.6	57		
LOUISIANA																																		
Baton Rouge	64	1016.3	1019.4	57	37	47.1	-8.5	73	26	20	13	0	12	35	65	4.07	-.29	1.59	7	2	1.0	1	10.4	NE	---	---	---	10	3	15	5.9	---		
Lake Charles	12	1017.3	1018.9	57	41	48.9	-7.0	74	6	25	13	0	5	38	68	3.87	-.66	1.21	8	1	1.2	1	8.7	E	*29	S	26	8	3	17	6.6	---		
New Orleans (U)	9	1016.6	-----	56	41	48.9	-9.6	75	26	28	13	0	4	---	66	3.92	-.26	1.55	8	1	1.3	1	7.7	---	21	W	27	12	4	12	5.5	51		
New Orleans	3	1016.9	1019.1	57	40	48.5	-8.9	75	26	25	13	0	5	35	62	3.96	-.01	1.48	8	1	2.0	2	12.5	NE	*31	WNW	15	10	5	13	5.6	---		
Shreveport	252	1008.5	1018.7	53	36	44.6	-7.4	74	5	18	13	0	11	28	57	1.98	-1.80	.86	4	1	T	T	10.4	NW	---	---	---	8	6	14	6.0	58		
MAINE																																		
Caribou	624	980.5	1003.3	22	3	12.5	2.7	35	9	-15	11	0	28	5	73	2.62	-.89	.79	15	0	39.5	45	11.7	WNW	*44	NW	14	7	3	18	6.9	---		
Portland	61	1000.4	1004.6	30	8	19.0	-2.5	45	25	-16	18	0	28	12	72	1.72	2.11	.71	9	0	30.5	18	12.2	WNW	36	NE	28	8	6	14	6.1	50		
MARYLAND																																		
Baltimore (U)	14	-----	-----	39	27	33.1	-4.2	64	28	8	17	0	20	---	---	3.90	-.91	1.32	6	---	---	---	---	---	---	---	---	---	---	---	---	---		
Baltimore	146	1005.4	1010.4	36	22	28.9	-6.1	61	24	3	17	0	24	19	66	3.51	-.52	1.32	6	0	18.3	16	15.4	WNW	52	NW	8	7	7	14	6.3	65		
Frederick	294	-----	-----	35	20	27.6	-6.5	61	24	-1	17	0	27	---	---	2.36	-.22	.87	7	0	14.3	10	---	---	---	---	---	---	---	---	---	---		
MASSACHUSETTS																																		
Blue Hill Obs.(R)	629	980.1	1004.3	29	15	22.1	-3.6	42	25	-10	18	0	27	---	65	5.33	1.79	2.19	11	1	26.4	21	17.7	WNW	49	WNW	25	8	6	14	6.3	46		
Boston	15	999.2	1004.2	32	19	25.5	-3.7	45	25	-4	18	0	27	14	62	8.87	2.94	2.65	10	0	23.9	19	15.3	NW	*45	E	16	8	4	16	6.4	59		
Nantucket	43	1004.4	1004.6	33	21	26.7	-4.4	46	25	5	18	0	25	17	69	3.97	-.55	1.34	7	0	17.2	7	16.9	NW	50	E	16	4	7	17	7.3	53		
Pittsfield	1153	961.6	-----	26	9	17.4	-4.3	48	26	-14	18	0	28	---	---	1.92	-.59	.61	12	0	30.2	28	---	---	---	---	---	---	---	---	---	---		
Worcester	986	967.2	-----	26	12	19.1	-5.0	44	26	-12	18	0	28	---	---	2.75	-.18	1.54	10	0	20.1	22	17.4	---	*51	WNW	25	7	7	14	6.5	---		
MICHIGAN																																		
Alpena (U)	587	989.2	-----	23	11	17.1	-2.8	44	23	-11	17	0	28	---	68	.83	-.62	.47	11	0	7.4	6	12.9	---	40	NW	17	3	8	17	7.8	54		
Detroit	619	985.4	1013.4	29	16	22.8	-3.9	57	24	-7	17	0	26	12	65	.67	-1.35	.34	12	0	4.1	3	13.9	NW	47	W	24	5	10	13	7.0	44		
Detroit (Willow Run)	722	983.1	1012.7	30	15	22.4	-3.7	57	24	-7	17	0	27	14	72	.44	-1.30	.23	6	0	3.7	2	12.4	NW	*40	W	24	3	11	14	7.2	---		
East Lansing (U)	856	-----	-----	29	13	21.0	-3.2	50	25	-9	17	0	28	---	---	.57	-1.24	.20	14	0	5.9	7	6.3	NW	17	W	24	---	---	---	---	52		
Escanaba (U)	594	991.2	-----	24	9	16.5	-1.1	52	23	-9	17	0	28	---	71	.18	-1.19	.10	7	0	1.7	7	12.5	---	35	NW	18	3	13	12	6.7	54		
Flint	761	984.1	1013.1	27	11	18.7	-4.6	47	24	-11	17	0	27	12	75	.37	-1.29	.11	11	0	5.3	4	9.4	WNW	*23	ENE	27	4	9	15	7.3	---		
Grand Rapids	681	987.8	1014.2	28	13	20.3	-3.5	49	26	-15	17	0	26	14	76	.62	-1.05	.19	14	0	10.5	16	11.1	WNW	27	NE	27	5	6	17	7.4	53		
Marquette (U)	677	986.8	-----	22	11	16.5	-2.4	48	26	-7	16	0	27	---	71	2.39	-.67	.49	20	0	33.8	35	10.9	---	40	SW	25	5	20	8.2	46			
Muskegon	627	990.2	1014.3	27	15	21.0	-3.5	48	26	-4	13	0	26	16	76	1.58	-.06	.41	12	0	31.5	33	---	---	---	---	---	2	5	21	8.4	---		
Sault Ste. Marie	721	990.2	1014.1	19	4	11.4	-2.1	40	27	-21	12	0	28	7	83	.60	-.92	.20	12	0	6.6	21	11.5	NW	*30	NW	17	4	7	17	7.4	41		
MINNESOTA																																		
Duluth	1409	974.6	1018.4	20	1	10.5	-.5	53	23	-24	16	0	27	2	67	.36	-.86	.06	8	0	3.1	11	14.0	NW	67	E	27	12	4					

CLIMATOLOGICAL DATA

FEBRUARY 1958

State and station	Elevation (ground) Feet	Pressure		Temperature										Precipitation					Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
		Station	Sea level	Average					Departure from normal					No. of days					Fastest mile				to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
				Maximum	Minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	0.1 inch or more	With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction		Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days

CLIMATOLOGICAL DATA

FEBRUARY 1958

State and station	Elevation (ground)	Pressure					Temperature										Precipitation										Wind					No. of days (sunrise to sunset)																																
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days 90° F or above	No. of days 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	0.1 inch or more	With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																	
																					Total	Max depth on ground			Speed	Direction						Date																																
ft	mb	mb	°F	°F	°F	°F	°F	°F	°F	°F	#	°F	%	in	in	in	in	in	in	in	in	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	%																																
TENNESSEE (Cont'd.)																																																																
Oak Ridge	905	982.0	-----	43	22	32.7	-8.3	68	24	1	17	0	22	---	2.57	-3.22	0.73	8	1	3.8	3	4.3	---	*43	---	28	13	4	11	4.6	---	---																																
TEXAS																																																																
Abilene	1759	955.0	1017.4	53	34	43.6	-4.5	74	5	19	16	0	13	33	70	1.63	-.72	.87	5	0	1.8	1	11.8	SE	49	NW	26	5	9	14	6.5	51																																
Amarillo	3590	887.2	1015.6	48	27	37.7	-1.9	70	4	10	12	0	20	29	77	.58	-.04	.21	6	0	5.2	3	11.3	SSE	52	NW	26	6	5	17	7.3	55																																
Austin	615	996.6	1019.1	57	41	48.8	-5.3	76	26	22	13	0	5	38	72	6.39	3.83	3.73	10	0	3	T	10.1	NNE	31	SE	22	9	4	15	6.5	42																																
Brownsville	16	1014.2	1016.9	70	53	61.7	-2.2	84	26	37	13	0	0	55	80	10.25	9.07	4.98	8	0	0	0	13.3	SE	33	SE	22	8	7	13	6.1	46																																
Corpus Christi	41	1016.3	1017.6	65	49	57.0	-3.3	83	26	29	13	0	2	49	79	5.24	3.80	2.99	5	1	5	1	12.0	NNE	29	NW	14	8	7	13	6.4	53																																
Dallas	487	1000.0	1019.4	53	36	44.7	-5.1	73	26	19	13	0	12	32	64	.83	-1.79	.36	5	1	8	1	12.3	NE	57	SW	26	5	9	14	6.5	49																																
Del Rio (U)	957	-----	-----	61	44	52.7	-4.4	80	5	32	13	0	1	---	1.67	-.60	.85	9	1	0	0	0	---	---	---	---	---	---	---	---	---	---	---																															
El Paso	3920	884.9	1013.5	64	40	51.6	2.5	77	18	27	12	0	3	28	43	1.11	.75	.76	5	1	0	0	12.9	WNW	61	N	11	9	6	13	5.7	76																																
Fort Worth	544	998.0	1019.5	52	35	43.6	-6.2	74	5	18	13	0	13	32	67	.84	-1.73	.32	5	1	9	1	13.5	NNW	*46	W	26	8	8	12	6.1	---																																
Galveston (U)	7	-----	-----	57	46	51.2	-6.2	70	28	30	13	0	1	---	1.66	-1.22	.42	10	0	2	1	15.0	E	36	E	22	---	---	---	---	---	50																																
Galveston	5	1016.6	1018.9	56	45	50.8	-6.5	72	6	31	13	0	1	44	77	2.84	-.30	1.04	10	0	2	T	15.9	E	---	---	---	---	---	---	---	---	---																															
Houston (U)	41	1013.2	-----	58	44	50.6	-7.1	75	26	26	13	0	3	---	2.63	-.18	1.13	12	1	T	T	11.7	SE	31	NW	14	10	4	14	5.9	47																																	
Houston	50	1015.9	1019.1	58	42	49.9	-6.7	75	26	26	13	0	3	40	71	3.59	.89	1.50	13	2	1.7	1	13.7	ENE	---	---	---	---	---	---	---	---	---																															
Laredo	500	1001.7	1017.0	66	47	56.6	-5.3	85	26	30	13	0	1	46	73	4.20	3.35	2.05	10	3	T	U	10.0	NE	*25	NNW	26	7	6	15	6.5	---																																
Lubbock	3243	901.8	1015.7	52	29	40.6	-2.5	73	4	9	12	0	17	31	76	.33	-.20	.16	4	0	1.2	1	14.3	S	*50	WSW	26	4	11	13	7.1	---																																
Midland	2854	915.3	1015.8	55	34	44.5	-4.5	72	16	17	12	0	13	33	70	1.57	.86	1.07	6	0	T	T	11.6	ENE	*36	WSW	5	8	7	13	6.3	---																																
Port Arthur	16	1017.6	1019.4	57	41	49.1	-6.9	75	6	25	13	0	5	39	73	3.82	.37	1.94	11	2	2.9	2	13.3	ENE	34	SW	26	10	2	16	6.4	46																																
San Angelo	1903	948.9	1017.3	54	37	45.3	-6.4	73	25	22	16	0	13	35	71	2.85	1.87	1.92	6	0	5	T	12.5	ENE	*44	W	26	8	11	14	5.4	---																																
San Antonio	792	992.2	1019.5	59	41	50.0	-5.1	75	26	22	13	0	4	39	73	3.88	2.30	2.27	9	0	1.2	1	9.9	NE	*43	NW	26	8	5	15	6.5	44																																
Tatooch	110	1013.2	1018.0	62	44	53.1	-5.8	82	26	24	13	0	3	44	73	5.26	3.29	2.59	10	0	3.4	3	12.9	N	47	W	27	8	4	16	6.4	---																																
Victoria	500	997.3	1019.0	55	38	46.5	-5.2	73	26	20	13	0	10	37	73	3.27	.64	1.67	9	1	T	T	11.6	NE	*37	NNW	26	7	7	14	6.4	---																																
Wichita Falls	1020	980.7	1018.7	50	31	40.7	-5.1	74	5	10	13	0	16	30	68	.55	-.94	.33	5	0	4.8	5	9.2	N	*35	NNW	26	7	5	16	6.5	---																																
UTAH																																																																
Milford	5028	842.9	1016.3	52	27	39.4	8.5	58	22	9	28	0	22	---	.89	-.18	.54	8	2	4.8	3	---	---	---	---	---	---	---	---	---	---	---	---	---																														
Salt Lake City	4220	866.2	1016.1	51	32	41.7	8.3	56	19	18	28	0	15	30	66	2.20	.97	1.05	14	1	9.5	2	8.6	SE	31	SE	25	2	6	20	8.0	50																																
VERMONT																																																																
Burlington	331	991.8	1007.3	22	4	12.9	-5.2	41	25	18	18	0	28	7	75	2.21	.68	.74	18	0	34.3	33	9.1	N	34	SE	28	4	4	20	7.9	40																																
VIRGINIA																																																																
Lynchburg	947	976.5	-----	40	24	31.6	-7.6	69	24	2	17	0	20	---	2.80	.32	.89	6	0	13.0	0	11.0	6	11	10.6	---	34	N	26	11	6	11	5.4	58																														
Norfolk	26	1009.5	1010.5	45	28	36.4	-5.6	66	28	11	17	0	21	23	61	3.55	.49	1.48	8	1	4	11	14.4	W	46	W	17	9	9	10	5.5	61																																
Richmond	162	1005.1	1011.5	43	25	33.8	-5.9	69	25	4	17	0	21	22	65	4.38	1.62	1.13	7	0	7.7	6	9.7	W	26	SW	28	8	11	13	5.8	56																																
Roanoke	1174	968.9	1012.4	40	24	31.8	-7.4	70	24	3	17	0	22	15	53	3.40	.84	1.59	6	0	6.2	6	14.2	NW	---	---	---	---	---	---	---	---	---																															
WASHINGTON																																																																
Olympia	190	1002.4	1009.6	54	40	47.0	7.0	63	18	27	28	0	2	41	84	6.40	.24	1.35	20	0	0	0	6.1	SSW	*45	S	25	0	2	26	9.4	---																																
Seattle (U)	14	-----	-----	55	45	50.1	6.6	63	23	36	28	0	0	---	5.27	1.53	1.01	20	0	0	0	8.3	---	54	S	25	0	5	23	8.9	26																																	
Seattle	14	1008.8	1009.7	---	---	---	---	---	---	---	---	---	---	---	41	75	---	---	---	---	---	---	6.1	S	---	---	---	---	---	---	---	---	---																															
Seattle-Tacoma	386	995.9	1009.9	53	42	47.5	6.6	61	23	31	28	0	1	41	80	5.36	1.41	.82	19	0	0	0	11.0	E	*55	SSW	25	0	5	23	9.1	---																																
Spokane	2357	943.1	1012.7	46	34	39.8	10.1	61	19	25	28	0	10	35	86	3.27	1.81	.65	17	0	7	7	8.4	ENE	*45	SSW	25	1	1	26	9.3	25																																
Stampede Pass (R)	3958	872.7	1012.2	35	30	32.6	5.6	47	20	21	28	0	21	---	7.89	3.18	1.95	23	0	47.8	112	---	---	---	---	---	---	---	---	---	---	---	---																															
Tatooch	101	1004.7	1007.7	52	44	48.1	4.9	61	18	40	27	0	0	44	85	9.18	.48	1.09	25	0	T	0	19.4	E	65	S	18	0	4	24	9.2	19																																
Walla Walla (U)	949	973.9	1009.8	54	41	47.2	8.9	68	18	32	44	0	2	---	1.60	.07	.30	16	0	0	0	5.7	---	36	E	24	1	3	24	8.9	52																																	
Yakima	1061	973.2	1012.1	52	33	42.8	8.6	62	21	25	28	0	15	36	77	1.84	1.03	.53	14	1	T	T	4.4	W	*37	WSW	25	2	3	23	8.6	---																																
WEST VIRGINIA																																																																

(Base 65°F.)

FEBRUARY 1958

U indicates Urban, R indicates Rural, sites.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

FEBRUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
VIRGINIA Central and northern portions	Jan. 31- Feb. 1	P.m. 31st -a.m. 1st							Snow, sleet, and rain	Storm, bringing snow, moved into Virginia from southwest late on January 31st, for fourth and heaviest snow of season. 7 to 10 inches of snow measured in Highland County for heaviest. Much of central and northern mountain sections reported from 4 to 8 inches. Tide-water section escaped with only a mixture of snow, sleet, and rain. Several schools closed on 3d and 4th where snow made travel for school buses hazardous. Damage resulted primarily from collisions on icy, slippery roads.
IOWA Entire State	Through- out month				2	25	4	1	Snow	Streets and highways slippery at intervals blamed for frequent traffic accidents, one of which involved 2 deaths, and many of which involved personal injuries.
RHODE ISLAND Southern portion	1	10 a.m.- 9 p.m.				4			Snow	Coastal storm dropped 4 to 8 inches of snow on Block Island and 2 to 3 inches inland for distance of less than 20 miles. 3 persons injured in skidding automobile accidents and 1 in fall on slippery walks.
NEW HAMPSHIRE Bethlehem, Grafton County	1	4 p.m.					4	1	Snow	Building collapsed from 28 inches of heavy snow, mostly accumulated from earlier storms.
MASSACHUSETTS Nantucket and Cape areas	1					3	3	1	Snow and wind	Northeaster gave first heavy snow of season to this area, over 7 inches at Nantucket. Several automobile accidents, attributed to slippery roads, injured 3 persons. Fishing boats forced to remain in safety of harbors.
NEW JERSEY Ocean, Atlan- tic, and Cape May Counties	1								Snow	Storm caused snowfall, totaling from 7 to 12 inches within 20 miles of southeast coast.
	1									Minor storms also reported near Andrews and at Sumter, S. C.
INDIANA LaPorte and Porter Counties	1-2							1	Snow	Heavy drifting snow closed county roads, resulting in closing of a number of rural schools.
NORTH CAROLINA Mountain areas	1-4								Snow and cold	Heavy snow on first 2 days followed by very cold weather stopped traffic over much of mountains and necessitated closing of schools in many areas. Relatively little direct damage from storm, but much loss of working time and some traffic accidents attributable to weather.
SOUTH DAKOTA Statewide	1-19					1	4		Ice, snow, and rain	Ice resulted from packed snow as well as occasional freezing rain. Over 100 collisions resulted from icy highways.
CALIFORNIA	2-5				7	Sev- er- al	5		Rain, wind, snow, elec- trical, and hail	Intense storm stationary off coast caused heavy rains and locally gale-force winds over extreme north on 2d, spreading into south on 3d and 4th. Heavy, wet snows in Siskiyou County broke poles and powerlines near Mt. Shasta. Marin, Napa, Solano, Contra Costa, San Mateo, and Santa Clara Counties flooded. Feather River at flood stage near Oroville, flooding Highway 40A in vicinity of Wagon Wheel. Many earthslides in north. Northwestern Pacific tracks covered north of Willits, several freight cars derailed by small slide south of Willits. Roads blocked in Eel River Canyon, and coastside Sonoma and San Mateo Counties. Home severely damaged by slide at El Sobrante, and several homes at Millbrae damaged by flowing mud. Strong winds twisted TV antennas at Willits, toppled a number of trees in San Mateo County, and tore 80-foot barge loose from moorings in San Joaquin River east of Antioch. Heavy rock slides closed highways near Coalinga, and farmer lost tractor in floodwaters. Highways flooded near Huron. Heavy rains throughout southern coastal areas, widespread flooding of streets and intersections, 73 schools closed on 4th in San Fernando Valley, the hardest hit. Few homes flooded in lowland areas, and many homes damaged by mud flows in foothill areas. Southeast of San Diego 7 families evacuated from flooded homes, and 25 persons from trailer court at Vista. Several homes and grocery flooded at Corona, 3 families evacuated at Stanton. Slides closed many mountain roads. Several automobiles stalled in waterfilled dips washed away by torrents. More than 100 trees

STORM DATA AND UNUSUAL WEATHER PHENOMENA

FEBRUARY 1958

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CALIFORNIA (Cont'd.)										toppled by gusty winds in Los Angeles area, damaging 15 automobiles and 10 homes. Heavy seas and high winds battered coasts and sea walls from Point Conception to San Diego. Seawater damaged 12 homes between Topanga Canyon and Castle Rock; 4 families evacuated at Imperial Beach. 17-year old girl washed out to sea by giant wave and drowned near Point Hueneme. \$200,000 dredging barge capsized and sunk in Santa Monica Bay. Lightning struck 2 homes at Pasadena, 1 at West Los Angeles, and several power pole transformers. Heavy hail fell in South Pasadena and other areas. 5 deaths occurred in traffic accidents attributed to storm; Garden Grove construction worker suffocated in sewer ditch earthslide. Heavy rains in south-east interior and many dry washes and arroyos turned into raging torrents. Sections of Highway 6 in Mojave Desert flooded.
CALIFORNIA Gualala, Mendocino County	3	10-10:15 a.m.	1	Nar- row	0	0			Waterspout, electrical, and hail	Waterspout moved northward along ocean beach, crossing portion of Del Mar Ranch and dissipating about 1 block from Gualala Hotel. 3 large cypress trees uprooted on Del Mar Ranch. No buildings in path of waterspout, described by witness as cone-shaped funnel 150 to 200 feet high, picking up water as it advanced along beach. Sky cloudy, and waterspout was followed by thunderstorm with hailstones 1/4 to 1/2 inch in diameter.
NEW YORK Central and western	3-4				3				Snow and wind	Snow squalls to lee of Lakes Erie and Ontario associated with strong winds. New snow depths of 10 to 18 inches, but drifts much higher. 2 deaths from heart attacks, 1 from automobile accident. Over 100 schools closed because of snow-choked roads. Some wind damage and a few roofs pushed in by heavy snow.
ARIZONA Phoenix area, Maricopa County	4	5 p.m.			1		3	4	Rain and electrical	Property damage by flooding. Many automobile accidents caused by heavy rain; 1 fatal. Crop damage due to lightning fire in stored hay.
ARIZONA Tempe (north- ern portion), Maricopa County	4	5:15 p.m.	1/2	75	0	0	4	1	Tornado (suspected)	Damaged homes in small residential section. Damage indicated tornadic action, but no funnel cloud seen. Storm moved northeastward.
ARIZONA Casa Grande (10 to 15 miles east of), Pinal County	5	1:15 p.m.			0	0			Funnel aloft	Well-defined funnel cloud sighted over open desert, remained at least 1,500 feet above ground.
TEXAS Gainesville, Cooke County	5	5 p.m.	3	*2			5	1	Hail and electrical	Hailstorm of 15-minute duration. Some stones as large as walnuts came down forcefully and covered ground in some areas. Neon signs shattered, windows broken, automobiles dented, roofs damaged, and glass in greenhouse broken. Steady roaring sound heard for some time before large white stones began falling. Accompanying electrical storm. Storm moved southeastward.
ARKANSAS Little Rock and North Little Rock, Pulaski County	6	1 a.m.	6			1		1	Wind and electrical	Widespread wind damage to buildings, signs, and trees. Wind gusts to 40 m.p.h., recorded at Little Rock Airport. No estimate of monetary loss available. Pipe-line worker knocked to his knees by lightning, but sustained no serious injury. Storm moved northeastward.
ALABAMA Pike County	6	2:05 p.m.	12	200	0	0	4	1	Tornado	Skippping but straight path of tornado through fields and pastures. 1 house and 1 barn destroyed. About a dozen houses and barns damaged. Path northeastward from west of Goshen to northwest outskirts of Troy.
TENNESSEE Lawrenceburg, Lawrence County	6	4:30 p.m.	1	67	0	0	3		Tornado	Portion of roof blown off 1 house; minor damage to roofs and windows of 5 other houses. Tornado funnel seen by 2 persons. Storm moved northeastward.
TENNESSEE Murfreesboro, Rutherford County	6	5:55 p.m.				1		1	Electrical	Plaster shattered from walls and ceilings; fires started; damage considerable. Minor injury to 1 person.
TENNESSEE Gum Spring Community, Grundy County	6	8 p.m.						1	Wind	Damage to 1 house roof, garage roof, and several farm outbuildings.

See footnotes at end of table.

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TEXAS Panhandle area	6 6-7	5 p.m. 6th			4			1	Snow and wind	Minor storm also reported at Muskogee, Okla. Arctic air mass moved southwestward. Snow generally heavier over northern Panhandle, began falling at Amarillo about 5:30 p.m. on 6th. Traffic crashes on ice-slick highways killed 4 persons in Panhandle; roads extremely hazardous. Some 20 cars stalled during night north of Canyon, others between Pampa and Amarillo and at Vega. Snow line extended north as far as Oklahoma and Kansas, southwest to Lockney, and southeast to Wellington. Winds generally light except at Dumas and Dalhart where gusts, driving thick snow, dropped visibility to 50 feet for brief periods.
UTAH Salt Lake County	6, 13, 15								Snow	Heavy snow over Wasatch Mountains resulted in several snow slides, mostly in Little Cottonwood and Big Cottonwood Canyons. 175 persons temporarily trapped at Alta on 6th because of slide.
FLORIDA Oxford, Sumter County	7	4 a.m.					5		Electrical	Lightning started fire which destroyed church.
PENNSYLVANIA Northern and eastern counties	7	All day			1	26	4	1	Snow and wind	Snowstorm dumped 3 to 14 inches of snow, with heaviest amounts in Pocono area. All property damage, personal injuries, and fatality caused by slippery roads and consequent automobile accidents. Accompanying winds piled drifts to 20 feet in north. Several homes destroyed by fire caused by overworked heating units. Storm moved eastward.
CONNECTICUT Western and central portions	7-8	A.m. 7th - a.m. 8th				4			Snow and freezing rain	Freezing rain in coastal sections and changing to mostly snow inland with depths up to 8 inches in northwest. Traffic badly snarled or halted on slippery highways in coastal and central sections. Skidding accidents caused serious injury to 4 persons in Waterbury area. Scattered power failures from broken wires, principally north of Hartford.
RHODE ISLAND Newport County	7-8	P.m. 7th - early a.m. 8th				2	3		Freezing rain	Highways covered with glaze in Newport area resulted in numerous skidding accidents. 2 persons injured in crashes, 1 seriously. Reports of damage to 6 vehicles, 2 of which estimated at \$500 each.
MAINE, MASSA- CHUSETTS, NEW HAMPSHIRE, and VERMONT	7-8				3	20	4	1	Snow, glaze, sleet, and wind	Northeast brought varied, or mixed, precipitation, mainly rain or glaze near coast and up to 18 inches of snow in central and northern Maine. Numerous highway accidents, injuring a score or more; 1 death at North Reading, Mass. Heart case deaths from exertion at Lawrence, Mass., and Athens, Maine. Minor power and phone outages; some trees and limbs downed. Snow removal costs will exceed direct storm damage figures.
NEW YORK	7-11				26				Snow and freezing rain	Snow storm moving up Atlantic coast, followed by snow squalls near Great Lakes. 16 persons died from heart attacks fighting snow, 10 deaths in automobile accidents. Well over 100 schools closed, roads blocked by drifts, and considerable rural isolation. Some milk dumped because it could not be marketed over blocked roads. Thruway closed evening of 16th to early morning of 17th due to blowing and drifting snow. Some factories closed, transportation disrupted. Also some structural failures, due to heavy snow; some fires in rural areas did more than usual damage because fire trucks could not reach the fire. Some freezing rain north of New York City.
CALIFORNIA Northern portion	7-12					1	5		Rain and slides	Series of storms caused heavy rains in north from Salinas and Stockton northward for 6 consecutive days. Thunderstorm at San Francisco Airport on 8th resulted in 0.15 inch rain in 4 minutes. Eel, Russian, Sacramento, and Feather Rivers began overflowing by 12th. Sacramento River flooded some lowlands at Red Bluff. Lowlands along Pine Creek west of Chico flooded. Near Oroville, Feather River again flooded Highway 40A. Eel River overflowed below Fernbridge, flooding bottomlands in that area. Local flooding of streets and intersections widespread in Marin County. Highway intersection flooded in Schellville; Napa-St. Helena highway flooded near Yountville. Minor flooding at Fairfield damaged home. Minor flooding at Inverness, Belmont, and Redwood City. Numerous land slides blocked highways in Feather River Canyon, Highway 101 in Mendocino and Humboldt Counties,

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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CALIFORNIA (Cont'd.)										and Marin City-Sausalito underpass in Marin County. Sir Francis Drake Highway blocked by slide near Point Reyes, and El Camino Real at South San Francisco. Several homes damaged by earth slides in San Francisco Bay area. A few trees with rain-loosened roots toppled by wind, 1 falling across street at San Rafael, another at Belmont, and limbs blown from a few trees at Chico. News photographer injured by bank cave-in on Eel River at Garberville.
KANSAS Western counties	8-9- 10								Freezing rain	Freezing drizzle fell over western third of State for rather prolonged periods on 3 days. Ice on wires at times reached 1/4 inch in diameter, but without material breakage of wires. Highways became slick and dangerous.
MICHIGAN Lake Michigan Shoreline (near)	8-17						5	1	Snow	Persistent snow squalls off Lake Michigan during entire period caused heavy snow deposits and heavy drifting. Schools and roads frequently closed, some closed during entire period. Heaviest damage occurred in collapse of buildings, 1 near Paw Paw collapsed with damage estimated at \$40,000. Indeterminate number of deaths and injuries caused indirectly by automobile accidents, overexertion, overexposure, etc. Trunk Highway U.S. 31 closed from Holland, Mich., to Indiana border on February 17 due to heavy snows and drifting. Counties most affected were those bordering Lake Michigan from Traverse City southward into Indiana.
MASSACHUSETTS Fitchburg, Worcester County	11	A.m.					3	1	Freeze	Subzero freeze broke water pipe with damage to store.
TEXAS Dallas, Tarrant County	11-12	6:30 p.m. - 7:25 a.m.			1			1	Snow	Slippery bridge caused 2-car crash at 1:43 a.m., killing woman and demolishing both cars. 58 traffic mishaps counted between 10:30 p.m., and 8:30 a.m.
TEXAS Galveston to Cameron Counties	11-12		360		3			1	Wind and rain	12- to 15-foot seas and winds of gale force, with rough rain squalls, caused collisions of boats, tore steel plates from deck holding lifeboat supports. Lifeboat had to be jettisoned. Fish trawlers crippled out from coast, nets became entangled in propellers. Waves 20 feet high. Coast Guard boat sank after collision.
CONNECTICUT Central and eastern portions	12	2 p.m. - 11 p.m.				Many			Snow	Storm unexpectedly developing south of Long Island yielded 1 to 5 inches of snow to inland and eastern coastal sections. Occurrence of storm before and during evening rush hours required efforts of 1,500 workers and 350 plows over State for snow removal. Undetermined number of persons injured in falls and minor skidding accidents. Traveling very hazardous, but serious tieups and delays did not result.
MAINE	13						3	1	Snow	Heavy snow, up to 12 inches in central, slowed traffic and caused minor accidents.
UTAH Marysville (1/2 mile north of), Piute County	13				1	1			Snow	Slippery highway resulted in traffic accident, killing 1 person and injuring another.
KANSAS Southern area	13-14	P.m. 13th - p.m. 14th						1	Freezing rain	Light freezing drizzle reported occasionally across southern Kansas. Traffic hindered by slick paving.
NORTH CAROLINA Entire State	13-19				17	Many	7		Snow and cold	Some deaths caused by weather-associated traffic and other accidents, others by fires due to overtaxed heating systems, and some by exposure. Property damage so widespread as to be very difficult to estimate. Damages to roads and highways estimated by officials at several million dollars above average winter damage. Freezing of rural and suburban water systems and city plumbing widespread. Ice jam on French Broad River caused light damage at Marshall. Ice damage bridge at Currituck Sound.
COLORADO Ouray County	14	10 a.m.			4				Snow slides	Snow slides took lives of 4 men near Camp Bird Mine, 5 miles southwest of Ouray. 1 man swept away at 10 a.m., and the 3 who went to search for him were killed by another slide shortly after noon.
LOUISIANA Gulf of Mexico	14				0	0			Waterspout	Reported as possible waterspout 40 miles south of Cameron.

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OREGON Central portion	14-16		400	*200- 300			5	2	Rain and slides	Minor storm also reported at Fitchburg, Mass. Heavy rains which at their peak resulted in 2- to 3-inch 24-hour totals in some areas in west. Major portion of damage was to rail- road and highways, due to slides brought on by rain, although a few homes also damaged and 1 demolished by slides. High water closed some highways in Willamette Valleys and several coastal areas. Storm moved eastward.
COLORADO Mountain areas	14-20						3		Snow slides	Accumulation of heavy snow caused numerous snow slides along Continental Divide and other high mountain areas, closed mountain passes, and caused minor damage to power- and communication lines through this period. Slide near Loveland Pass on 16th swept unoccupied car off road.
VIRGINIA	15	A.m.-p.m.			2	2			Snow	Fifth and heaviest snow of season moved into Virginia from southwest, reaching central por- tion near midday on 15th. Heaviest accumula- tions recorded in central mountain and northern portions of State. Highway Personnel reported up to 19 inches in north and 12 to 15 inches in central mountain section. Reports in Richmond area ranged from 6 to 8 inches. Much below- normal temperatures followed snowfall, along with closed roads or hazardous driving condi- tions, schools closed in some sections for en- tire week. Schools in Richmond area closed for 3 days. Damage resulted primarily from colli- sions on icy, slippery roads. At Richmond Police Headquarters, more than 125 accident calls re- ceived between 4 and 8 p.m. Henrico County re- ported 18 accident calls, and Chesterfield 8. At Fredericksburg, man died of a heart attack while working at his stalled car. In Prince William County, another man succumbed to heart attack in 4-car collision caused by icy roads. 2 children at Bristol strayed on their way to school and were hospitalized because of frost- bite and exposure.
PENNSYLVANIA Eastern half	15-16	Noon 15th - noon 16th			24	10	4	1	Snow	Worst storm in 32 years to hit area caused untold hardship to many residents because of 8- to 45- inch snowfall and drifts up to 25 feet with Po- cono area hardest hit. Deaths attributed to freezing, heart attacks from over exertion, and carbon monoxide poisoning from snowbound cars. Most injuries occurred in western part of State where icy streets caused many automobile acci- dents. Blizzard brought all forms of transpor- tation to standstill, causing churches, schools, factories, stores, and offices to close for several days. Loss to area economy and cost of snow removal not determined. Storm moved northeastward.
MARYLAND and DELAWARE	15-16	Afternoon 15th- morning 16th			Some	Some	8		Snow, wind, and cold	Heavy snowstorm accompanied by strong winds and well below freezing temperatures on afternoon of 15th and early morning of 16th blocked high- ways and virtually paralyzed all transportation by land and air. Thousands of motorists marooned on highways. On 17th and 18th, all schools and most offices and factories closed. Schools, however, remained closed until 24th, in general, in northern and central Maryland and some sur- rounding districts. Many automobiles abandoned on highways damaged in one way or another. Business in Maryland brought to standstill as millions of dollars lost in production, payrolls, and retail sales. At Friendship International Airport-Baltimore area, snowstorm fifth heaviest on record for period since 1871. However, due to strong winds and freezing temperatures it probably ranked as one of the most damaging with respect to loss of life and property as well as business. In some Eastern Shore districts, strong winds downed powerlines, and telephone lines. Many trees blown down. Snowstorm dropped heaviest amounts in band about 50 miles wide and centered on line running north-northeast through Washington, D. C. Storm totals in this area ranged from 15 to 20 inches. Strong winds caused serious drifting of snow to block high- ways. For several days it was virtually im- possible for snow plows to keep roads or highways open, due to strong winds.
NEW JERSEY Most of State	15-16								Snow and rain	Coastal storm brought from 12 to 19 inches of snow to most of State, with greatest amounts in north- west. Along southeast coast, precipitation mostly rain, with only 3 or 4 inches of snow in that area.

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CONNECTICUT and RHODE ISLAND	15-17	9 p.m. 15th - early a.m. 17th			12	Few			Snow and wind	Most severe winter storm of wind and snow in 2 years. Storm began as light snow late on 15th and produced blizzard conditions all day on 16th. Winds averaging 25 m.p.h., and frequent gusts of 50 m.p.h., or more, and inland temperatures between 15° and 20° accompanied general snowfall of 10 to 20 inches. Main effect of storm was heavy drifting of all highways by wind-blown snow and mammoth removal job that followed. States of emergency declared in several cities to allow clearing of clogged streets and removal of abandoned vehicles. Normal travel conditions not realized until 2 to 3 days after storm and major airports closed until early on 18th. 9 deaths in Connecticut and 3 in Rhode Island, all but 1 from overexertion. Fire, resulting from heavy snow short circuiting wires, destroyed \$10,000 home at Deep River, Conn. Ample warning by Weather Bureau forecasts and occurrence on Sunday kept traffic tieups to minimum. Power failures negligible. Schools closed and industries curtailed in entire area on 17th.
INDIANA LaPorte, Porter and St. Joseph Counties	15-17				3			1	Snow	Estimated 40 inches of snow fell on Michigan City, resulting in drifts 15 feet high. All travel, except by train halted. Schools closed most of week. Many country homes isolated. Helicopters air-lifted sick and carried fuel and food. Deaths result of heart attack while shovelling snow, exposure to snow and cold, and carbon monoxide poisoning while trying to stay warm in snowbound car.
NEW YORK	15-19				56				Wind and snow	Another coastal storm followed by severe squalls and winds. Rural isolation worse than in previous 2 storms. 37 deaths from heart attacks only 5 from automobile accidents, 9 from asphyxiation (snow blowing in heating or vent system or cars stalled in drifts with motor running), and 5 from exposure. Transportation again disrupted, milk dumped, buildings gave away under heavy snow weight, 90 percent of upstate non-city schools closed, factories closed, etc. Worst storm in many years and some accounts label it worse than blizzard of 1888.
NEW ENGLAND Central and northern portions	16-17				14	Many	5	1	Snow and wind	Severe northeast coastal storm produced blizzard or near-blizzard conditions all day on 16th in southern portion and later on 16th and into 17th in north. New record snowfall for 1 storm at many places, including 19.4 inches at Boston. 31.1 inches fell at Hanover, N. H. Much of area had 1 to 2 feet, excepting generally less than 1 foot in Maine and 1 to 5 inches on Cape Cod. Gale winds piled snow into deep drifts, exceeding 10 feet in some areas. Drifts up to 15 feet reported in southern Vermont. All forms of transportation halted or hampered. Some trains stalled, and bus and air travel cancelled. Many Sunday activities cancelled and schools closed Monday. Only minor damages to phone and powerlines, but generator failure added to storm's woes when power off for 200,000 South Shore residents in Massachusetts. Some line trouble from falling branches on Cape Cod. 14 deaths attributed to the storm, mostly from exertion; 8 in Massachusetts, 3 in Vermont, 2 in New Hampshire, and 1 in Maine. Accidents and falls injured a score or 2. High seas and abnormal storm surge tides flooded coastal roads in Massachusetts and, at Houghs Neck, 50 homes flooded. Several fishing boats damaged near Provincetown. Wind broke 3 plate-glass windows in Quincy, Mass. Snow removal costs estimated at several million dollars. Weight of accumulated snow combined with wind to demolish factory building in Rumney, N. H., and large barn roof at South Newbury, Vt.
CALIFORNIA Northern, central, and south coastal areas	17-19				1	Sever- al	6		Rain and wind	Heavy rains in north on 17th, in central on 18th, shifting to south on 19th caused flooding and slides in much of State. Primary damage in coastal counties from Trinity River south to Santa Cruz, Sacramento Valley, and in Los Angeles County, but local flooding as far south as Fresno and Lancaster-Antelope Valley. 2000-foot slide on Northwestern Pacific Railroad 80 miles south of Eureka with numerous slides across Highway 101, primarily near Piercy, intermittently closed both rail and highway travel into Humboldt County. Several road and bridge washouts in Trinity County and minor flooding at Lewiston and Junction

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CALIFORNIA (Cont'd.)										City. Hyampom isolated by washout of 200 feet of road to Hayfork. Many slides in Lake County; State Highway 20 to Lakeport closed by high water. Clear Lake rose about 2 feet above flood stage, flooding basements of about 40 homes. Marin County hardest hit in San Francisco Bay area with many slides, lowland flooding, and power failures. Several slides east of bay area, most serious on Rheem Drive and Moraga Road, Orinda and Crockett Boulevard, and Cumming Skyway. 3 houses overlooking Lake Merritt at Oakland slid downhill and razed. Slides and local flooding on San Francisco Peninsula. San Lorenzo River threatened Santa Cruz, but only minor flooding of lowlands. State Highway 9 blocked by slides, fallen trees, and much driftwood down San Lorenzo River and deposited by high tides on Santa Cruz beach. Some flooding of farmlands in low places and fields adjacent to high running streams in Sacramento Valley. Many persons evacuated along Sacramento River from Redding to Sacramento, primarily in Glenn County. State Highway 32 between Chico and Willows closed, and all but truck traffic stopped by high water on U.S. Highway 99W south of Corning. Most roads west of Willows flooded; water 3 feet deep over River Road near Woodland where it crosses Yolo Bypass. Slides under Shasta Daylight stopped train about 22 miles south of Dunsmuir, but no derailments or injuries. Local winds between Penryn and Loomis blew tree across powerlines. Strong winds knocked down powerlines at Pinecrest. Some farmlands and rural roads inundated in lower San Joaquin Valley south to Fresno and Madera Counties; minor flooding at Patterson, Modesto, and Fresno. Gusty winds blew down power poles south of Arvin, but only light rain. Heavy rains flooded many lowland sections in Los Angeles County; hardest hit areas in San Fernando Valley and West Los Angeles; wind and wave lashed beach communities. Los Angeles City multimillion dollar water and power plant under construction at El Segundo Beach seriously damaged. Red Cross disaster forces in low lying areas of Lawndale, Hawthorne, and Manhattan Beach. Downpour flooded 100 or more intersections in Los Angeles and caused numerous landslides, 1 at Elysian Park Moving Mountain, closing inbound lanes of Pasadena Freeway. 8 foot water, and 10 automobiles submerged on Santa Ana Freeway at Atlantic Blvd. Water at intersection of Wilshire Blvd., and Mariposa flowed in windows of parked cars. Bridge washed away at Gardena and many schools closed. Some flood damage to vegetables in Los Angeles and Ventura areas. Wind-driven waves sank 12 boats at mooring in Newport Harbor. Orange County Harbor Department officials reported storm "as bad as the much talked about blow of 1893". Giant waves damaged 8 houses on Imperial Beach, and 40-foot fishing vessel sunk with 1 man drowned.
CALIFORNIA Concord, Contra Costa County	19	3:25-3:35 p.m.	10- 15	Narrow	0	0			Funnel aloft and rain	Well-defined funnel cloud observed over hills east of Concord apparently moving westward. Weather rainy. Observer reported no unusual sounds and funnel well defined and pointing earthward from dark cloud formation. Oakland Weather Bureau Airport Station 4 p.m. radio-sonde showed conditionally unstable air with considerable moisture at lower levels and dry spot at about 700 millibars.
MASSACHUSETTS and NEW HAMPSHIRE	23					Many	4	1	Snow	In eastern Massachusetts and southern New Hampshire, 1 to 5 inches of snow made roads especially hazardous. Scores of automobile accidents resulted with many minor injuries.
OREGON Entire State	24-25	Afternoon 24th- morning 25th			1		5	3	Wind	High winds which touched practically every area of State and which in gusts reached 70 to 80 m.p.h., at a number of points caused widespread outage of power and telephone services as literally hundreds of poles collapsed under force of wind and very large number of trees fell across lines. Roofs of many public and private buildings and homes damaged or completely blown away. Several barns and other farm buildings blown down. 1 near Coos Bay, killing 26 milk cows. Near Chiloquin, highway employee, clearing wind-felled tree from highway, killed when struck by another tree. Several cars, homes and other buildings damaged when struck by falling trees. Storm moved eastward.

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WASHINGTON Entire State	24-25	Night 24th - early a.m. 25th				1	5		Wind and rain	High wind, thunderstorm activity, and heavy precipitation occurred as rapidly moving storm struck coastal areas evening of 24th and moved across State during night. Sea level barometer pressure dropped to below 29 inches in some localities. Wind speeds ranging from 50 to 70 m.p.h., reported in various localities. Greatest damage caused by trees falling on powerlines and buildings. Unusually large number of power outages occurred in all localities. Windows broken in a few instances, television antennas blown down, and other damage to property. Runoff from heavy precipitation damaged roads and resulted in considerable soil erosion in some areas of northeast. A few small streams near or above flood stage.
IDAHO Southern counties	24-25	About mid- night- 4:30 a.m.						1	Wind, rain, hail, and electrical	In Canyon and Ada Counties, considerable structural damage occurred between midnight and 12:30 a.m., in vicinities of Parma, Notus, Homedale, Middleton, and Star. No positive evidence of other than straightline winds which blew out of south or southwest in advance of rapidly moving cold front. Later in morning, some wind damage reported in vicinity of Gooding about 2 a.m., and Fairfield about same time. Still later, winds up to 45 m.p.h., reported at Pocatello, 60 m.p.h., in Twin Falls-Burley area, and 54 m.p.h., at Idaho Falls. In these eastern counties, rain, hail, and lightning accompanied strong winds, and principal damage was to telephone and powerlines.
CALIFORNIA Entire State	24-25				3	7	7		Wind, rain, hail, and electrical	Violent Pacific storm moved southeastward across State, causing gale winds and heavy precipitation. Peak of storm on afternoon of 24th with sustained winds of 40 to 50 m.p.h., encompassing area bordered on north by Humboldt, Trinity, Shasta, and Lassen Counties and on south by Monterey, San Benito, Merced, and Tuolumne Counties. Within this area, gusts to 60 m.p.h., common; Hamilton Field gusts to near 80 m.p.h., and Red Bluff in excess 78 m.p.h. At Blunts Reef Lightship, winds 75 m.p.h., and 14-foot waves. Gale winds of lesser violence as far south as San Diego County and in southeastern deserts. Windstorm damage light in individual cases, but so widespread aggregate loss to insured property in north estimated to exceed \$2,000,000 by General Adjustment Bureau and given catastrophic classification. Most damage confined to roofs, antennas, fences, and glass, but hundreds of trees toppled, damaging many homes and automobiles both in north and south. 3 private planes demolished and fourth heavily damaged at airport near Livermore. Southeastern desert gales up to 50 m.p.h., produced furious sandstorms and resulted in extensive damage to automobiles and upset house trailers. 38-foot fishing boat driven on rocks at Anacapa Island and 2 boats torn from moorings in Santa Monica Bay, but secured before damage occurred; light plane overturned at Santa Monica Airport. Scattered thunderstorms over State, with heavy hailstorms in Watsonville and Hayward areas. Lightning struck church steeple at Eureka. Very large hailstones fell at Bonita, 1 stone measured nearly 1 inch in diameter. Heavy rains again flooded many northern rivers and streams and caused local flooding of streets and intersections in south. Levee on Sacramento River broke at Hamilton City, flooding considerable farmland but break relieved pressure on other levees and crest flood passed downstream without serious trouble. Many other lowland areas in Sacramento Valley flooded with most roads connecting U.S. Highways 99E and 99W closed from Red Bluff to Sacramento. Homes flooded at Corning; 10 farm families evacuated from lowlands west of Orland, and others from along Cache Creek, Yolo County. Many evacuated flooded areas at Dunsmuir and Upper Lake where water rose 4 to 6 feet deep in streets. Russian River reached sixth highest flood crest of record at Guerneville, flooding lowlands much of its length. Many families evacuated from Geyserville-Guerneville section, and 50 families at Ukiah. Eel River 4-1/2 feet above flood stage at Fernbridge; flood waters washed away part of 2-1/2 square mile section of farmland near Fortuna. Much local flooding in San Francisco Bay area. 3 homes flooded at Sonoma when landslide blocked storm drains; Highway 108 flooded 14 miles west. At Santa Barbara,

STORM DATA AND UNUSUAL WEATHER PHENOMENA

FEBRUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
CALIFORNIA (Cont'd.)										local flooding closed Municipal Airport. Slides again active in all areas. Kern River Canyon east of Bakersfield blocked; giant mudslide covered 400 feet of highway south of Crockett. Topanga and Malibu Canyon roads blocked by slides, slides threatened 3 homes at Glendale.
CALIFORNIA O'Neals, Madera County	25	5 a.m.	1/2	80-100	0	0	1	1	Tornado, hail, and snow	Small tornado investigated by Weather Bureau official with apparent path northeastward. No damage except to trees, as area remote from buildings and utility lines. Observer, 1/4 mile distant, heard loud, roaring noise, but darkness prevented observing funnel. Numerous trees downed, mostly falling in north-northeastward direction, but some limbs found sheared and flung 15 to 20 yards to side of general path. Weather cloudy; tornado accompanied by hail and snow, with hailstones 3/16 to 1/4 inch in diameter.
COLORADO Grand Junction, Mesa County	25	1:40-2:10 p.m.					3		Wind	At Municipal Airport in Grand Junction, 2 tied-down planes torn loose by wind, flipped over, and damaged extensively. Third plane struck and slightly damaged. Wind reached 69 m.p.h., briefly in gusts at Weather Bureau Airport Station. Storm moved northeastward.
UTAH Salt Lake County	25								Electrical	Minor damage resulted when lightning knocked tree across powerlines in Midvale. Parked commercial plane hit at Salt Lake Airport, causing slight damage.
	25									Minor storm also reported in Burdette Township, S. Dak.
	25-26									Minor storms reported in scattered sections of New Mexico.
TEXAS Trans-Pecos and far western areas	26	A.m.-p.m.					5	1	Wind, dust, snow, sleet, and rain	Blustering winds of near hurricane force slammed across west Texas, causing widespread damage; also spreading haze of dust across large part of State. Accompanied by snow flurries, sleet, and light rain. At El Paso, parts of several roofs blown off, large signs blown down, few trees uprooted, many cars sandblasted, and plate-glass windows broken. At Pecos, about 14 phone poles and a few trees ripped up, TV antennas and signs damaged and 1 car smashed by falling tree. Poor visibility cancelled airlines flights. Turbulence caused by cold front which moved from west.
OKLAHOMA Alderson, Pittsburg County	26	2 p.m.			0	0	3	1	Tornado (suspected) electrical, and rain	Possible tornado destroyed garage and chicken-house, and tore porches off home. Storm moved northeastward.
ALABAMA Henry and Barbour Counties	26	3:30 p.m.					4	1	Hail	At Ariton, heavy hail from size of marbles to size of golf balls; enough to make ground white. No visible damage, but most roofs damaged to some extent. Hail also reported at Centre, breaking windowpane, and at Eufula.
OKLAHOMA Moffett, Sequoyah County	26	3:30 p.m.	1/8	20	0	0	3	1	Tornado, hail, and rain	Tornado moving northeastward dipped to ground momentarily, causing damage to alfalfa mill. Flying debris damaged home and utility lines. 5 windows blown out in damaged home. 4-foot strip of blacktop dug out of highway by tornado. Tornado probably moved aloft into Arkansas.
LOUISIANA Hosston, Caddo Parish	26	5:15 p.m.	** 660	50	0	2	3	1	Tornado	Funnel seen; unroofed 2 houses and overturned trailer; only 0.01 inch of rain in gage 200 yards from area of destruction. Tornado moved east-northeastward.
MISSISSIPPI Copiah, Hinds, Rankin, Madison, and Leake Counties	26	5:30-7:30 p.m.	60	20-75	7	24	5	3	Tornado	Began about 9 miles west of Crystal Springs and moved northeastward over sparsely settled land, occasionally lifting, across southeast edge of Jackson where TV tower blown down, to Luckney Community where heaviest damage occurred; then, through Pearl River swamps almost paralleling river to strike Farmhaven and Pine Grove communities. 6 deaths occurred at Farmhaven.
MISSISSIPPI Copiah, Rankin, Scott, Leake, and Neshoba Counties	26	5:40-7:50 p.m.	65	25-100	1	34	6	3	Tornado	Tornado moved northeastward from just northeast of Harrisville, struck Piney Woods School where damage heavy to 2-story or higher buildings, then across sparsely settled land to Walnut Grove, passing 4 miles west of Morton, and on to Laurel Hill. No path visible north of Morton, indicating it lifted and let down again as it reached Walnut Grove which sloped upward in line of advance. Buildings at bottom of slope

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

FEBRUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSISSIPPI (Cont'd.)										exploded, but upslope damage increased to total destruction with debris scattered. Roofs lifted off, with furniture and persons carried upward after the roofs. 75 percent of homes destroyed in Walnut Grove.
LOUISIANA Lake Providence (5 miles north of), East Carroll Parish	26	6 p.m.	10		0	0	4	1	Tornado (suspected)	Moved about 10 miles northeastward and crossed into Mississippi. Several homes damaged.
MISSISSIPPI Pearl River and Lamar Counties	26	6-6:30 p.m.	25	50	0	9	5	4	Tornado	Tornado dipped to earth at small settlement of White Sand and moved northeastward, passing to west of Poplarville and east of Lumberton. Mostly unsettled land, but struck farmhouses in path, totally destroying them. Much timber lost and tung trees twisted and broken.
MISSISSIPPI Jackson Airport (2 miles east of), Hinds County	26	6:10 p.m.	7		0	0			Funnel aloft	Reported moving northeastward and not touching ground.
MISSISSIPPI Mayersville area, Issaquena County	26	6:20 p.m.	10		0	0	3	1	Tornado (suspected)	Appears same storm which hit 5 miles north of Lake Providence, La. 1 house unroofed. Storm moved northeastward.
MISSISSIPPI Camden and Sulphur Springs Communities, Madison County	26	6:50 p.m.	10		0	0	4	1	Tornado	This may have been funnel observed 2 miles east of Jackson Airport, which dipped to ground for a few miles then lifted. Several houses and other buildings unroofed, and 1 house and 2 other buildings destroyed, with furnishings blown away. Tornado moved northeastward.
MISSISSIPPI Raleigh (4 miles west of), Smith County	26	7 p.m.	Short	Narrow	0	0		1	Tornado (suspected)	Evidence of passage of tornado through forest; apparently struck no homes or other buildings. Tornado moved northeastward.
MISSISSIPPI Biloxi to Hurley, Harrison and Jackson Counties	26	7:30-8:30 p.m.	30	30	0	1	4	1	Tornado (suspected)	Tornado moving northeastward unroofed some houses in northern part of Biloxi then passed over swampy land to village of Hurley where home destroyed and woman seriously injured.
MISSISSIPPI Perry and Wayne Counties	26	7:45-8:30 p.m.	28	100	5	12	5	3	Tornado	Struck Brewer community 5 miles east of Richton, destroyed homes and stores in path; rolled automobiles 150 yards around top of hill in clockwise direction, turning it over and over until completely wrecked. House and store disappeared. Farmhouse near Chicora and Winchester struck. Heaviest damage to homes built on ridges or hilltops. Path extended northeastward past Winchester for 1 mile then disappeared.
MISSISSIPPI Vicksburg (southern portion), Warren County	26	8:05 p.m.			0	0			Funnel aloft	Funnel aloft reported moving eastward.
ALABAMA Mobile County	26	10:38 p.m.					4	1	Wind	Scattered wind damage. Largest single item was side of warehouse in Mobile blown out. Gust at Weather Bureau Airport Station at Spring Hill 71 knots. Highest sustained observed wind only 35 knots, creating suspicion of funnel cloud gust, but no pressure dip recorded.
TENNESSEE Savannah and vicinity, Hardin County	26	11:10 p.m.			0	0	5	1	Tornado (suspected)	At Savannah, concrete-block school gymnasium demolished. At nearby Walker community, 1 home almost completely destroyed, barns and several outbuildings demolished, several barns blown away or damaged, woodworking factory unroofed, and several small buildings, garages, and TV antennas damaged or destroyed.
ALABAMA Atmore (4 miles north-east of), Escambia County	26	11:30 p.m.			0	0	4	1	Tornado (suspected)	At Robinsonville some barns leveled and many more damaged. Telephone poles downed.
ALABAMA Choctaw County	26	Evening	20	60	0	0	5	1	Tornado and wind	Skipping path northeastward from Isney to past Gilbertown and Toxey. Damage includes \$50,000 in timber. In addition, windstorms of undetermined character listed as doing damage in Jachin and Choctaw, in northern part of County. Red Cross gave county damage in lump sum under heading of tornado, and few details known.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

FEBRUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
ALABAMA (Cont'd.)										They counted 5 homes, 8 barns, and 4 other buildings destroyed, while 3 homes, 12 barns, and 7 other buildings heavily damaged.
TENNESSEE Dyersburg, Dyer County	26	P.m.						1	Wind	Roof damage to commercial building.
TENNESSEE Medina, Gibson County	26	P.m.				1		1	Wind	2 automobiles damaged by falling phone poles; 1 driver injured.
NEBRASKA Most of State, except south- east, extreme east-central; and southwest- ern half of Panhandle	26-27	Afternoon 26th- afternoon 27th		*300			5	1	Wind, rain, and ice	Ice storm to east of Alma-Butte line, and blizzard to west. Heavy ice damage to tele- phone and powerwires. Several large semi- trailer trucks blown off ice-covered highway by gales. Most roads and schools closed in blizzard area. Heavy rain, but little ice, to east of Fairbury-Tekamah line, caused minor flooding. Storm moved north-northeastward.
OKLAHOMA	26-27						4	2	Wind, rain, hail, dust, and electrical	Deep low pressure system moved across northern Oklahoma. Pressure readings fell to all-time record lows on 26th. Thunderstorms with light hail and strong winds moved across central and eastern sections on 26th. Winds up to 60 m.p.h., blew across State behind low pressure system through 27th, causing widespread damage to plate-glass windows, utility lines, TV antennas, trees, roofs, etc. Considerable blowing dust in western and southern portions, causing some erosion and crop damage.
SOUTH DAKOTA Central and western counties	26-28	P.m. 26th -midnight 28th					4		Snow	Traffic halted and schools closed as wind-whipped snow reduced visibility to zero. Accumulations generally reached 3" to 9 inches, but locally higher in Pierre-Winner area and in higher Black Hills. Prolonged winds caused a few drifts as deep as 12 feet. Snow-removal and related costs accounted for major storm losses. Storm con- tinued on March 1.
KANSAS Most of State	26-28								Wind, dust, rain, dust, and snow	Storm center approaching from southwest brought variety of severe weather to almost all of Kansas. Chief characteristic of storm was in- tense low pressure, several stations reported their lowest pressure of record. Thunderstorm reported from most of eastern two-thirds of State on night of 25th-26th. Rain which began in advance of frontal passage turned to freezing drizzle, then to sleet, and finally to heavy snow as storm advanced eastward. High winds of 50 to 60 m.p.h., over western and northern counties caused some dust blowing in southwest and severe snow drifting in northwest, north- central, and central where snow heaviest, 5 to 14 inches. Some drifts 15 feet high reported. Many roads blocked. In east, freezing drizzle and freezing rain made roads and highways so slick that traffic almost at standstill. Lack of severe cold plus abundance of feed favorable for mature livestock. Some loss of newborn animals. Utility lines in eastern Sherman County somewhat damaged.
NORTH DAKOTA Central portion	26-28						5	1	Rain, glaze, and sleet	Heavy rain fell in LaMoure, Stutsman, and sur- rounding Counties, and many basements flooded in Jamestown. Heavy damage from storm occurred in central North Dakota from LaMoure and Logan Counties, northward to Wells and Ramsey Counties. In this area, rain, glaze, and sleet caused thousands of telephone and powerline breaks, with heavy damage to utility companies. Wires down in 50-mile belt from Jamestown to Devils Lake. Northwestern Bell Telephone Company officials estimated damage running to \$150,000. Total of 230 telephone men assigned to repair work. Dozens of communities without telephone service for several days, and communication problems tremendous. 30 poles and 173 cross arms broken between Carrington and Buchanan. At Devils Lake, 62 long distance circuits knocked out and 12 towns without long lines service. About a dozen Great Northern Railway circuits out between Grand Forks and Rugby. Storm moved eastward.
ALABAMA Montgomery and Macon Counties	27	1:30 a.m.	13	150	0	0	4	1	Tornado	Continuous but weak, straight path north-north- eastward from 2 miles south of Mathews to 2 miles east of Shorter, through sparsely settled pasture and wood land. Damage mostly to tenant houses and barns. 2 cows and 400 hens killed.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

FEBRUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
FLORIDA Quincy, Gads- den County	27	Early a.m.							Wind	Several tobacco barns blown down.
FLORIDA Entire western portion	27	Early a.m.				4			Wind and rain	Very strong gusty winds lashed most west Florida between Pensacola and Panama City in advance of cold front and caused widespread damages. Numerous buildings and several homes damaged or partially destroyed. Some hail reported between Graceville and Chipley. 4 persons, all members of same household, injured at DeFuniak Springs, Walton County. Numerous TV antennas and 1 TV transmitter tower downed by winds. Newspapers reported tornado, but little evidence to support existence of tornado.
MISSOURI St. Louis	27	Early morning					4		Wind	Winds of 38 knots, with brief gusts above that caused collapse of addition to store building, and caused numerous tree limbs to be blown down, disrupting electric power to about 100 homes.
NORTH CAROLINA Lumberton (4 miles north- east of) Robeson County	27	Late af- ternoon			0	0	3		Tornado	Farm home, outbuildings, and utility lines damaged.
	27									Minor storms also reported in Cumberland and Robeson Counties, N. C.
CONNECTICUT Southwestern coastal areas	27-28	A.m. 27th - a.m. 28th					5		Rain, wind, and elec- trical	Rain beginning on 27th became heavy during early a.m., of 28th. Storm totals 1.5 to near 3.0 inches in southwest coastal area. Accompanying winds with gusts to 55 m.p.h., and tides 3 feet above normal caused serious flooding of shore-line highways and roads from Greenwich to New Haven. 300 persons evacuated and 500 more temporarily isolated in shore areas of Norwalk, Westport, Fairfield, and Milford. Flood alerts on shoreline rivers, but waters generally remained within banks. High winds also wrought considerable property damage. 2 unfinished brick walls blown over and trailer truck top ripped off at Norwalk; large signs, store windows, and trees wrecked and power failures to 1,000 customers. Lightning-caused fire destroyed barn at North Guilford, with loss of 10 horses and 1 cow. Loss estimated at \$10,000.
SOUTH DAKOTA Eastern Half	27-28	A.m. 27th - noon 28th					3		Glaze and freezing rain	Glazing occurred intermittently with accumulations of 1/2 to 3/4 inch at Gettysburg, Faulkton, Highmore, and Miller. Communication lines west of Aberdeen downed.
NEW YORK Southeastern portion, New York City, and Long Island	27-28				2				Rain	Heavy rains from 1 to over 3 inches caused some flooding in coastal sections. 1 man drowned and another killed as car skidded on wet pavement.
CALIFORNIA Delano (near), Kern County	28	3:50 p.m.			0	0			Funnel aloft	Airline pilot reported funnel cloud not reaching ground. Strong shear line aloft in east-west direction, moving southward over central California.
CALIFORNIA Sacramento and San Joaquin Valleys (east- ern portions)	28	3:50 p.m.					2	1	Wind and hail	Freak gust of wind hit southeast portion of Modesto, blowing down 9 power poles and snapping tree branches. Hail showers of short duration occurred at Sonora, and damaging winds caused 8-hour power failure in Strawberry Valley.
NEW ENGLAND Central and northern portions	28				1	Sev- er- al	5	1	Rain, snow, and wind	Northeast coastal storm gave heavy rains to much of Massachusetts and heavy snow farther north. Hundreds of cellars flooded in Boston and eastern Massachusetts. Numerous automobile accidents in snow area with several injuries. Winds felled trees and power- and phone lines in scattered areas, especially in southwestern Maine. Wind damage most severe in southern Vermont, where powerlines downed in several towns. At Pownal, Vt., falling wire electrocuted 12 cows. Many trees and TV antennas felled. Two automobiles damaged by falling trees at Bennington, Vt. Ski train stalled for 11 hours near Madison Boulder, N. H., by heavy snow.
TENNESSEE Bristol, Sulli- van County	28							1	Wind	Shingles blown from roofs, trees uprooted, and power- and phone lines damaged.
TENNESSEE Johnson City Washington County	28							1	Wind	Widespread damage to roofs and TV antennas.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

FEBRUARY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TENNESSEE Sanford Com- munity McMinn County	28							1	Wind	Portion of roof blown from store onto 2 automo- biles causing heavy damage to both.
TENNESSEE Lee Station (near), Bled- soe County	28					1		1	Wind	Wind broke off power pole dropping powerlines on metal roof of house. Electrical appliances wrecked and insulation burned from house wiring. Woman sustained injured knee and burned hands.
	28									Minor storms also reported at Gaffney, S.C.; and at Oak Ridge, Tenn.

LATE REPORTS

MAINE Penobscot and Washington Counties	Jan. 26-31					1	4		Glaze, sleet, and wind	Prolonged storm period with freezing rain on 26th, 28, and 31st. Restoration of powerlines broken on 26th hampered by continuing storm and addition- al breaks. State Police Radio tower at Carroll collapsed on 28th. Lineman injured on 31st near Alexander when on toppling pole. Ice 2 inches in diameter on wires on 31st. Many trees felled or damaged by ice load. Phone lines broken. Some communities without power a week. Many with- out heat. Ice-laden trees and bushes hampered repairs to lines, with bulldozers needed to make way for crews. Most severe icing confined to several streaks through this general area of eastern Maine.
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* Miles instead of yards.

** Yards instead of miles.

° Includes crop damage.

C Crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

FEBRUARY 1958

The severe floods in the Sacramento Basin in California towards the end of the month were the most damaging ones in February. Preliminary estimates place the damages between 6 and 7 million dollars. The upper Sacramento River reached its highest level since January 1943. Downstream from Red Bluff, Calif., the Sacramento reached its highest level since 1942. Clear Lake on upper Cache Creek exceeded the previous high level of February 1938.

The flood in the lower portion of the Guadalupe River in Texas was the second largest since records began. While the flood waters in the Nueces in Texas did not exceed the alltime records, it was considered one of the larger floods.

ATLANTIC SLOPE DRAINAGE

The Neponset River, which went above bankfull stage at Norwood, Mass., on January 22, continued in flood until February 2. The Charles River at Charles River Village, Mass., continued in flood until February 8. This was the worst January flood ever experienced in the Metropolitan Boston, Mass., area and was due to excessive rain from January 15 to 29.

The Wallkill River went above bankfull stage on the 28th and was above flood stage on March 1. Flooding was due to a downstream ice jam. Two homes were isolated by lowland flood waters, otherwise it was mostly bottom land flooding with minor damages.

Flooding in the Raritan and Passaic River Basins in New Jersey was due to heavy rain during the night of the 27th and early morning of the 28th. The Antecedent precipitation index before the storm was high due to a recent 10-to 20-inch snowmelt. There was still 1 to 6 inches of snow on the ground on the 28th. Several families were evacuated along the Ramapo and Pompton Rivers. Many roads were blocked by high water in both north and central New Jersey.

The only flooding in the Lehigh Basin during the month was along small creeks in the Allentown, Pa., area on the 28th due to heavy rain and snowmelt. Rainfall over the Basin averaged near 2 inches, and the heaviest amounts were recorded between 10 p.m. on the 27th and 3 a.m. on the 28th.

Perkiomen Creek overflowed at Graterford, Pa., during the early morning of the 28th due to heavy rain (1 to 3 inches) during the night of the 27th-28th. Portions of Brandywine Creek were above bankfull stage but damage, if any, was minor along both streams. Several families were evacuated near Langhorne, Pa., in the Neshaminy Basin. In New Jersey, low-lying roads around Camden were closed for several hours on the morning of the 28th. Drives along the east bank of the Schuylkill in Philadelphia, Penn., were blocked by water for a few hours, necessitating rerouting of traffic.

There were two periods of minor flooding in eastern North Carolina. The first overflow was due to 1.5 inches of rain from the 1st to the 8th and the second to 2 inches of rain from the 25th to the 28th. Flooding along the Neuse and Cape Fear Rivers continued into March.

The Pee Dee River continued in flood from January 26 to February 5 from the heavy rainfall on January 24 and 25. Moderate precipitation on the 6th, 7th, and 8th caused slight overflow at the Blewett Reservoir and slight flooding downstream at Peedee, S. C. The flooding along the Rocky River at Norwood, N. C., on the 27th and 28th was

due to 1.5 to 2 inches of rainfall on the 26th and 27th.

The heavy rain (2 to 3 inches) on the 26th and 27th caused minor flooding on the Saluda River at Pelzer, S. C., on the 28th and March 1 and moderate flooding on the Broad River at Blair, S. C., on the 28th. Light lowland flooding occurred on the Congaree River below Columbia, S. C.

The flooding along the Ocmulgee and Altamaha Rivers in Georgia between the 8th and 20th was due to heavy rainfall from the 5th through the 8th. Over 3 inches of rainfall was reported at some of the stations during that period.

The Savannah River at Clyo, Ga., remained above bankfull stage the entire month. No damage was reported.

EAST GULF OF MEXICO DRAINAGE

Heavy rains on the 6th and 7th caused flooding on the Apalachicola River at Blountstown, Fla., from the 9th to the 18th. No damage resulted from the high water.

The flooding on the Cahaba River at Centreville, Ala., was due to heavy rainfall on the 6th and 7th. This same storm caused a flash flood on Townsend Creek near Equality, Ala. Water washed away sand beneath the pillars of a concrete bridge spanning this creek, causing the bridge to drop 4 feet. Another bridge on Coosa County Road No. 3 between Equality and Alexander City, Ala., was closed to traffic and barricaded by the Alabama State Highway Patrol.

Minor flooding occurred on the Tombigbee River, at Demopolis, and below from the 1.5 to 2 inch rainfall on the 8th. Sharp rises occurred in the headwaters but no flooding resulted. The heaviest rainfall occurred in the middle reaches of the streams.

Brief periods of excessive rainfall produced mostly minor flooding of lowlands in the Pearl River Basin during February near the middle of the second week and at the end of the 3d week. Damages, if any, were very light.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The monthly mean stage of the Mississippi River at Minneapolis, Minn., was 6.7 feet, 0.6 foot above normal. This was the highest monthly mean stage at this point since 1953. At LaCrosse, Wis., the monthly mean stage was 4.9 feet, 0.5 foot above normal. This was the highest monthly mean stage for this point for February since 1952. The thickness of the ice on the Mississippi River at Lake Pepin on the 28th was 24 inches. An ice jam occurred on the Root River just downstream from Hokah, Minn., following a warming period that began on the 20th. Very little overflow occurred. Ice on many streams in this area broke up and went during this period. An ice jam in the lower Skunk River on the 27th caused a slight levee break, inundating some farmland near Augusta, Iowa, and in the Green Bay bottoms between Augusta and the mouth of the Skunk. The highest stage reached at Augusta was 14.4 feet (flood stage 15 feet) on the 27th.

Ice jams caused minor rises and lowland flooding on the Raccoon River between Boonville and Commerce, Iowa, during the last week of the month. An ice jam in the Des Moines River, that extended from the western part of Ottumwa, Iowa, to a point near Chillicothe, Iowa, caused minor overflows of lowlands in and above that area.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

FEBRUARY 1958

Snowmelt and ice jams caused overflows of the East Branch Pecatonica River at Blanchardville, Wis., and on the Pecatonica at Martintown, Wis., from the 25th to the 27th. Damage was minor and confined mostly to the deposit of debris on farmlands.

Missouri Basin.--The channel in the Missouri River opened up in the reach between Yankton, S. Dak., and Omaha, Nebr., during the last few days of February. Heavy shore ice remained intact on the Missouri. Openings in the channel were also reported in the Pierre-Mobridge, S. Dak., sector of the Missouri, although the upper part of Ft. Randall reservoir at Chamberlain, S. Dak., remained frozen.

Local flooding occurred near the mouth of Plum Creek about 3 miles northwest of West Point, Nebr., from the 1.5-to 2-inch rainfall on the 26th and 27th. The overflow across U. S. Highway 275 and the Chicago and Northwestern Railroad tracks was caused by ice blocking culverts and damming up the normal flow of Plum Creek. Some damage resulted to tracks and other installations of the C. & N. W. Railroad at that point.

Local flooding occurred on Salt Creek near Ashland, Nebr., and on a few small streams in the eastern part of the State between the 25th and 28th, due to rapid snowmelt, local ice jams, and locally heavy rain. Temperatures rose into the fifties during that period. Highway 63, west of Valley, Nebr., was closed because a bridge piling was knocked out by ice. Water covered portions of Highway 15, south of Schuyler, Nebr., and in the Venice, Nebr., area on the 26th and 27th. Very little damage was reported.

Heavy rain falling on frozen ground near the close of the month on the Big Blue River in southern Nebraska caused some minor overflow along the middle reaches. Damage was negligible.

The minor local flooding on the Grand, Lamine, and Wakenda Creek in Missouri was due to heavy rain near the close of the month. No damage was reported.

Ohio Basin.--Snow cover over the upper Allegheny Basin accumulated during the first half of the month, with depths up to 52 inches reported from New Albion, N. Y., with water content of 7.68 inches. Water content of the snow cover over this headwater area varied from 2 to 7.68 inches. During the latter part of February the snow cover diminished slightly. Water equivalent as of the 28th varied from 1.35 to 6.60 inches. The snow cover over the Upper Monongahela Basin diminished during the month with depths of 1 to 9 inches reported on the 28th.

The Allegheny River was frozen over from Pittsburgh to Olean, N. Y., with ice 5 to 13 inches thick. The ice began breaking up about the 26th of the month, and an ice gorge developed on the Allegheny River between Lock 8, Mosgrove, Pa., and Lock 9, Rimerton, Pa. This gorge 5 miles long became serious with a 14-foot rise on the lower gage at Lock 9, Rimerton, due to backwater near the end of the month. This gorge which threatened the communities of Kittanning, Mosgrove, and Templeton moved out and dissipated about the 8th of March, with no flooding or damage resulting.

Heavy ice formed in the French Broad Basin during the first half of the month due to extremely cold weather. By the 18th enough ice had accumulated in the reach of the river running through Marshall, N. C., to cause a major ice jam. Icy currents

backed through storm sewers to flood the entire business district. U. S. Highway 25-70 running through the business district was inundated with 2 to 3 feet of water, halting traffic and flooding basements of business buildings with up to 6 feet of water. When the ice began to move it threatened to move the bridges from their abutments. The ice jam broke up on the 20th without causing any serious flooding. This was the worst ice jam in Marshall since January 1918.

Below normal temperatures during most of the first 3 weeks resulted in the heaviest ice condition on rivers in the Ohio Valley since February 1948. All tributary streams except in the extreme southern portion were frozen over by the 10th to the 13th. Light floating ice was first reported on the upper Ohio on the 11th, becoming heavier and one-half to three-fourths full of ice by the 17th along the entire Ohio River. Navigation dams which had been raised downstream to Louisville were lowered to prevent ice damage and to start the ice moving in the open river. With the loss of pools, stages started a slow recession to below normal pool conditions and, with the river nearly full of heavy ice, navigation was suspended on the entire river by the 18th. Moderating temperatures set in on the 22d and the ice deteriorated rapidly so that dams were raised again beginning on the lower Ohio on the 23d, with navigation being resumed late that same day and progressing upstream to the upper reaches by the 25th.

WEST GULF OF MEXICO DRAINAGE

Flooding on the Little River at Cameron, Tex., between the 23d and 26th and on the Brazos at Bryan, Tex., on the 24th was due to excessive rains with amounts near 6 inches.

Heavy rains (2 to 6 inches) in the narrow Colorado River Basin below Austin, Tex., on the 21st, 22d, and 23d caused flooding in the reach at and below Smithville, Tex. Stages at Smithville, Columbus, and Wharton, Tex., were higher than the spring floods of 1957 when a much larger volume of water moved downstream from the highland lakes. There was no extensive damage.

Extensive flooding occurred on the Nueces below Cotulla, on the Frio below Derby, Tex., and on the Atascosa, during the last decade of the month, from 7 to 9 inches of rain in a 3-day period. Flash flooding occurred on the west fork of the upper Nueces and on Montell Creek. Record stages for February were recorded at Tilden Crossing, Three Rivers, and Calallen, Tex., on the Nueces, at Calliham, Tex., on the Frio, and at Whitsett on the Atascosa. While flood waters did not exceed the alltime records, it was one of the larger floods in the Nueces River Basin. Some 300 persons were evacuated because of high water. There were no fatalities. Most of the flooded area was ranch and farmlands with very little damage reported except to fences. Considerable damage resulted to highways, bridges, streets, and railroads. The Missouri Pacific line was blocked for 2 days between Corpus Christi and San Antonio. The floods delayed construction on the Wesley Seale Dam.

Moderate to heavy rain (2 to 5 inches) during the 3 day period from the 20th to the 22d caused flooding in the Navidad, Lavaca, San Antonio, and Guadalupe Rivers in Texas. The flood in the lower portion of the Guadalupe, where the rain was the heaviest, was the second largest since records began, being exceeded only by the flood of July

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

FEBRUARY 1958

1936. In the city of Victoria, approximately 26 city blocks were flooded and 350 persons were evacuated, of which 103 required Red Cross assistance. Two persons lost their lives when their cars were swept off the road by the overflowing Guadalupe. Outside the Victoria area, damages were confined mostly to roads, water gaps, fences, and grazing lands.

PACIFIC SLOPE DRAINAGE

Heavy rain on the morning of the 19th caused the Dominguez Creek channel between Los Angeles International Airport and Los Angeles Harbor to overflow. Rainfall during the 11-hour period ranged from 2.75 inches to 3.49 inches, or an average of 3 inches. Other sections of the Los Angeles Basin reported rainfall amounts of 1.5 to 4 inches. Damages were estimated at \$20,000.

The first of two flood-producing storms struck the Sacramento Basin on the 18th. This storm followed the usual storm track of the series, and brought very heavy rains on the 18th and early morning of the 19th to extreme northern California and to the North Coast range, with only moderate rain in the Sierra. This was a warm type storm, with rain falling at high elevations. The resulting runoff brought the upper Sacramento River above its junction with the Feather to its highest levels since January 1943 and many westside tributaries to the Sacramento River went out of banks on the 19th. After 4 days respite, the last, and most destructive, of the storms moved in. This last storm approached the California coast from almost due west of the San Francisco Bay Region. Heavy rain was falling over all of northern California by early morning of the 24th. Again it was very warm, with rain up to 8,000 feet in the Sierra. South winds were extremely high most of the 24th, with gusts up to 70 m.p.h. at coastal and valley points from extreme northern to central California. The cold front associated with this last storm crossed northern California accompanied by a torrent of rain, the evening of the 24th. The air behind this last storm was cold. Snow showers occurred in the mountains as low as 5,000 feet by early morning of the 25th and scattered rain showers in the valleys.

Downstream from Red Bluff, Calif., the Sacramento River reached its highest level since 1942, on the 21st and again on the 26th. Three communities,

Tehama, Hamilton City, and Grimes, were evacuated as a precautionary measure. The west side tributary streams of Stony and Cache Creeks reached record high stages on the 25th. Clear Lake on upper Cache Creek reached a new record high level with a stage of 10.88 feet compared with a previous high of 10.25 feet in February 1938. Extensive flooding occurred around the edges of the lake with damage estimates of over 3 million dollars. On the main stem at Colusa, where the warning stage is 58 feet and flood stage 68 feet, the river reaches a level of 64 feet only on an average of once every 2 years, and then only for a day or two. This year a stage in excess of 64 feet continued from February 4 through March 3.

Heavy rainfall over the north coastal areas of northern California during the month caused two separate floods on the Eel River between the 18th and 26th. The second flood was the higher of the two with bankfull stage exceeded by 3.5 feet at Fernbridge, Calif. Meteorological conditions preceding the 18th was quite similar to the conditions prevailing before the disastrous floods of December 1955. Several thousand acres of farmland were under water at the height of both floods. Preliminary estimates place the damage in excess of \$100,000.

Heavy rain on the 14th, 15th, and 16th caused light flooding on the Umpqua and Coquille Rivers in Oregon. Precipitation averaged 4 inches in the Coquille and 3.6 inches in the Umpqua. Precipitation in the headwaters was considerably lighter. No damage of consequence resulted from these overflows.

Columbia Basin.--Light scattered flooding occurred on three different occasions in the Snake Basin. The first occurred on the 2d and 3d along the Snake River at Rigby, Idaho; the second, on the Malheur River at Vale, Oreg., on the 17th; and the third, on the Weiser River and Pine Creek on the 25th. Minor damage was reported to roads and bridges. These floods resulted mainly from precipitation as most of the snow in the lowland had already been melted.

This was the 3d consecutive month with flooding in the Willamette Basin. The floods were light and no damages were reported. Light floods like these are usually more beneficial than damaging as it restores and increases the fertility of soil covered by the flood waters.

FLOOD STAGE DATA

(All dates in February unless otherwise specified)

FEBRUARY 1958

River and station	Flood stage	Above flood stages -dates		Crest*	
		From-	To-	Stage	Date
ATLANTIC SLOPE DRAINAGE		Ft.		Ft.	
Charles: Charles River Village, Mass.	4	Jan. 20	8	6.1	Jan. 29
Neponset: Norwood, Mass.	9	Jan. 22	2	10.8	Jan. 27
Walkill: Phillipsburg, N. Y.	12	28	1	13.0	28
Ramapo: Mahwah, N. J.	8	28	1	8.9	28
Pompton Lakes, N. J.	2	28	Mar. 1	2.1	28
Pompton: Pompton Plains, N. J.	12	28	28	12.4	28
Possaic: Chatham, N. J.	6	Mar. 1	Mar. 2	6.1	Mar. 1
Little Falls, N. J.	126	Mar. 1	Mar. 2	126.6	Mar. 1
Millstone: Blackwells Mills, N.J.	7	28	Mar. 2	11.05	28
Raritan: Manville, N. J.	15	28	Mar. 1	16.1	28
Bound Brook, N. J.	8	28	Mar. 1	12.1	28
Assunpink Creek: Trenton, N. J.	7	28	28	8.8	28
Perkiomen Creek: Graterford, Pa.	8	28	28	10.4	28
Roanoke: Randolph, Va.	21	28	28	#22.25	28
Neuse: Neuse, N. C.	14	28	1	#16.5	Mar. 2
Smithfield, N. C.	13	9	10	14.5	9
		28	1	#16.8	Mar. 2
Goldsboro, N. C.	14	12	16	15.5	14
		Mar. 1	Mar. 8	17.5	Mar. 6
Kinston, N. C.	14	1	7	15.3	4
		Mar. 4	Mar. 13	15.45	Mar. 9
Cape Fear: Lock No. 2, Elizabeth- town, N. C.	20	11	11	23.4	10
		28	Mar. 4	27.9	Mar. 1
Rocky: Norwood, N. C.	A16	27	28	17.65	27
Pee Dee: Pee Dee, S. C.	19	Jan. 26	Feb. 5	22.6	Jan. 31
		10	12	19.2	11
Saluda: Pelzer, S. C.	6	28	Mar. 1	6.8	28
Broad: Blair, S. C.	14	28	28	16.8	28
Ocmulgee: Macon, Ga.	18	8	9	19.5	8
Abbeville, Ga.	12	14	18	13.3	15
Altamaha: Charlotte, Ga.	15	19	20	15.2	20
Savannah: Clio, Ga.	11	Jan. 28	1	12.4	4-5
				13.5	21-22
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.	15	9	18	19.4	11
Cahaba: Centreville, Ala.	23	7	7	23.3	7
Tombigbee: Lock 4, Demopolis, Ala.	42	9	12	44.5	11
Lock 3, Whitfield, Ala.	33	8	14	44.5	11
		18	19	34.3	19
Lock 2, Pennington, Ala.	46	11	12	46.3	11
Lock 1, Jackson, Ala.	31	10	15	32.6	13
Pearl: Jackson, Miss.	18	Jan. 22	2	22.5	Jan. 26
		15	24	20.7	19
Bogalusa, La.	15	Jan. 24	28	17.4	10
				17.0	20
Pearl River, La.	12	Jan. 27	3	12.9	Jan. 29-30
		10	13	12.8	11
		21	22	12.1	22
MISSISSIPPI SYSTEM					
Root: Hokah, Minn.	47	27	27	49.6	27
East Branch: Blanchardville, Wis.	11	25	25	11.9	25
Pecatonica: Marintown, Wis.	11	25	28	14.9	27
Missouri Basin					
Big Blue: Barnston, Nebr.	18	28	28	20.0	28
Blue Rapids, Kans.	20	1	1	20.0	1
Wakenda Creek: Carrollton, Mo.	20	28	28	20.1	28
Lamine: Clifton City, Mo.	19	27	Mar. 1	21.5	28
Petite Saline Creek: Boonville, Mo.	17	Mar. 1	Mar. 1	18.7	Mar. 1
Grand: Sumner, Mo.	26	27	Mar. 2	28.9	28
WEST GULF OF MEXICO DRAINAGE					
Little River: Cameron, Tex.	30	23	26	36.7	23
Brazos: Bryan, Tex.	34	24	24	36.4	24

Otherwise specified)

FEBRUARY 1931

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
WEST GULF OF MEXICO DRAINAGE (Cont'd.)		Ft.		Ft.	
Colorado: Smithville, Tex.	25	23	23	25.6	23
Columbus, Tex.	24	23	25	27.3	24
Wharton, Tex.	26	24	26	29.7	25
Frio: Tilden, Tex.	12	21	26	22.9	24
Calliham, Tex.	11	22	27	29.9	24
Atascosa: Whitsett, Tex.	20	22	25	30.9	23
Nueces: Tilden Crossing, Tex.	11	22	1/	24.8	24
Three Rivers, Tex.	35	23	1/	43.0	26
Mathis Dam, Tex.	74	--	11 1/		
Calallen, Tex.	7	--	1 1/		
Navidad: Ganado, Tex.	21	23	26	27.2	24
Lavaca: Edna, Tex.	21	23	25	24.6	24
San Antonio: Goliad, Tex.	35	25	26	35.9	25
Guadalupe: Gonzales, Tex.	20	22	26	33.4	23
Cuero, Tex.	23	23	27	34.5	25
Victoria, Tex.	21	22	Mar. 2	30.3	26
PACIFIC SLOPE DRAINAGE					
Stony Creek: St. John, Calif.	12	19 25	19 25	12.4 13.0	19 25
Sacramento: Red Bluff, Calif.	23	12 18 24	12 19 25	23.4 25.8 24.8	12 19 24
Hamilton City, Calif.	148	19 24	20 25	148.9 149.2	19 25
Moulton Weir, Calif.	77	1	28	83.7	20
Colusa Weir, Calif.	62	1	28	69.8	26
Colusa Bridge, Calif.	68	26	26	68.0	26
Tisdale Weir, Calif.	46	1	28	51.8	27
Fremont Weir, Calif.	34	1	28	38.7	26
Rio Vista, Calif.	9	3 4	3 4	9.4 9.5	3 4
Eel: Fernbridge, Calif.	18	18 24	20 26	19.9 21.5	19 25
Umpqua: Kellogg, Oreg.	31	16	16	31.2	16
Coquille: Coquille, Oreg.	23	16	17	23.5	16
McKenzie: Leaburg, Oreg.	12	15	17	17.3	16
Coburg, Oreg.	11	16	16	12.6	16
Santiam: Jefferson, Oreg.	13	16	17	15.3	16
Pudding: Aurora, Oreg.	15	Jan. 31 17	6 19	19.2 15.7	1 17
Tualatin: Dilley, Oreg.	12	Jan. 31 12	1 12	12.4 12.1	31 12
Beaverton, Oreg.	29	1	4	30.8	2
Willamette: Harrisburg, Oreg.	12	16	17	14.2	16
Oregon City, Oreg.	12	1 18	2 19	12.3 12.0	2 19

* Provisional
Highest Stage Observed
1. Continued at the end of month
X Tentative

FEBRUARY 1958

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RAWINSONDE DATA

Average monthly values

FEBRUARY 1958

CARIBOU, ME. (979 MB.)										CHARLESTON, S. C. (1014 MB.)										COLD BAY, ALASKA (995 MB.)										COLUMBIA, MO. (990 MB.)										DAYTON, OHIO (979 MB.)																																																																																																																																																																																																																																																																																																																																																																																																																
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																																																																																																																																																																																																																																																																																																																																																																																																																					
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SURFACE	28	191	-13.5	72	291	4.7	28	13	1.6	80	263	7.4	28	27	-1.0	89	117	3.1	28	238	-7.5	77	293	3.3	28	297	-7.6	72	264	5.2	28	238	-7.5	77	293	3.3	28	297	-7.6	72	264	5.2																																																																																																																																																																																																																																																																																																																																																																																																														
1,000----	28	30					28	123	2.4	66	276	8.5	28	-16					28	155					28	127																																																																																																																																																																																																																																																																																																																																																																																																																														
950----	28	423	-12.2	74	308	4.1	28	538	2.7	54	285	13.2	28	394	-1.1	75	80	5.8	28	555	-6.5	67	302	7.8	28	524	-7.8	72	284	10.9	28	555	-6.5	67	302	7.8	28	524	-7.8	72	284	10.9																																																																																																																																																																																																																																																																																																																																																																																																														
900----	28	836	-12.0	72	354	4.7	28	975	1.3	51	281	15.7	28	823	-2.9	70	61	4.1	28	979	-5.5	56	317	13.0	28	947	-8.4	71	299	16.3	28	979	-5.5	56	317	13.0	28	947	-8.4	71	299	16.3																																																																																																																																																																																																																																																																																																																																																																																																														
850----	27	1,272	-11.8	68	333	5.2	28	1,434		52	282	18.8	28	1,274	-4.7	63	74	6.2	28	1,427	-5.5	48	318	16.3	28	1,390	-9.3	65	303	19.4	28	1,427	-5.5	48	318	16.3	28	1,390	-9.3	65	303	19.4																																																																																																																																																																																																																																																																																																																																																																																																														
800----	27	1,737	-12.0	61	331	5.4	28	1,919	-1.3	46	287	21.6	28	1,750	-6.1	56	103	7.6	28	1,902	-6.0	40	318	18.8	28	1,858	-10.2	58	302	21.0	28	1,902	-6.0	40	318	18.8	28	1,858	-10.2	58	302	21.0																																																																																																																																																																																																																																																																																																																																																																																																														
750----	27	2,227	-13.8	60	313	3.5	28	2,430	-3.3	45	289	27.0	28	2,247	-8.6	53	116	13.2	28	2,943	-9.2	41	314	22.7	28	2,883	-12.9	44	298	28.2	28	2,943	-9.2	41	314	22.7	28	2,883	-12.9	44	298	28.2																																																																																																																																																																																																																																																																																																																																																																																																														
700----	27	2,751	-15.7	56	295	6.4	28	2,976	-6.0		269	29.7	28	2,784	-11.9	51	123	10.9	28	3,510	-12.0	43	313	24.7	28	3,440	-15.4	40	297	30.2	28	3,510	-12.0	43	313	24.7	28	3,440	-15.4	40	297	30.2																																																																																																																																																																																																																																																																																																																																																																																																														
650----	27	3,306	-18.1	52	286	4.9	28	3,549	-8.8		271	34.0	28	3,339	-15.6	50	123	10.9	28	3,510	-12.0	43	313	24.7	28	3,440	-15.4	40	297	30.2	28	3,510	-12.0	43	313	24.7	28	3,440	-15.4	40	297	30.2																																																																																																																																																																																																																																																																																																																																																																																																														
600----	27	3,903	-21.3	50	287	4.3	28	4,170	-11.9		269	39.2	28	3,946	-19.2	49	109	12.2	28	4,123	-15.3	40	314	29.9	28	4,048	-18.3	39	293	30.9	28	4,123	-15.3	40	314	29.9	28	4,048	-18.3	39	293	30.9																																																																																																																																																																																																																																																																																																																																																																																																														
550----	27	4,540	-24.6	43	273	5.4	28	4,826	-15.9		271	44.7	28	4,576	-23.4	49	104	12.0	28	4,768	-19.5		312	30.7	28	4,688	-21.9	39	293	34.0	28	4,768	-19.5		312	30.7	28	4,688	-21.9	39	293	34.0																																																																																																																																																																																																																																																																																																																																																																																																														
500----	26	5,234	-28.9		260	7.4	28	5,544	-20.5		272	51.7	28	5,278	-28.2	50	112	12.2	28	5,477	-24.0		309	35.0	28	5,390	-26.2	38	291	37.9	28	5,477	-24.0		309	35.0	28	5,390	-26.2	38	291	37.9																																																																																																																																																																																																																																																																																																																																																																																																														
450----	26	5,980	-33.9		258	9.7	28	6,309	-25.8		271	56.3	28	6,018	-34.1	52	117	13.8	28	6,228	-29.6		308	39.1	28	6,139	-31.4	40	289	39.8	28	6,228	-29.6		308	39.1	28	6,139	-31.4	40	289	39.8																																																																																																																																																																																																																																																																																																																																																																																																														
400----	25	6,732	-39.8		250	12.8	28	7,160	-31.6		271	63.3	28	6,840	-40.3		112	13.2	28	7,069	-35.9		309	39.8	28	6,970	-37.3		286	41.0	28	7,069	-35.9		309	39.8	28	6,970	-37.3		286	41.0																																																																																																																																																																																																																																																																																																																																																																																																														
350----	25	7,693	-45.6		272	15.2	27	8,085	-37.8		270	71.5	28	7,738	-46.7		121	9.1	28	7,984	-42.7		304	43.3	28	7,881	-43.3		284	42.0	28	7,984	-42.7		304	43.3	28	7,881	-43.3		284	42.0																																																																																																																																																																																																																																																																																																																																																																																																														
300----	25	8,709	-50.3		271	16.5	27	9,135	-43.9		267	83.9	28	8,747	-52.3		115	10.1	28	9,008	-49.6		296	47.0	28	8,905	-52.9		276	45.9	28	9,008	-49.6		296	47.0	28	8,905	-52.9		276	45.9																																																																																																																																																																																																																																																																																																																																																																																																														
250----	24	9,899	-50.5		273	18.3	27	10,344	-49.6		266	90.9	28	9,918	-54.9		121	11.7	28	10,187	-54.7		290	49.9	28	10,090	-52.0		277	45.7	28	10,187	-54.7		290	49.9	28	10,090	-52.0		277	45.7																																																																																																																																																																																																																																																																																																																																																																																																														
200----	23	11,365	-49.2		275	23.7	27	11,798	-51.8		265	93.3	28	11,348	-52.9		153	12.8	28	11,613	-54.0		287	47.6	28	11,532	-49.2		279	44.5	28	11,613	-54.0		287	47.6	28	11,532	-49.2		279	44.5																																																																																																																																																																																																																																																																																																																																																																																																														
175----	21	12,251	-47.9		275	19.2	27	12,661	-53.4		264	83.2	28	12,216	-49.8		165	15.7	28	12,474	-52.5		285	46.6	28	12,400	-52.0		279	44.5	28	12,474	-52.5		285	46.6	28	12,400	-52.0		279	44.5																																																																																																																																																																																																																																																																																																																																																																																																														
150----	20	13,268	-48.6		279	16.9	25	13,631	-55.1		265	76.7	28	13,229	-48.4		152	14.6	28	13,471	-52.7		286	42.7	28	14,584	-52.8		274	40.4	28	13,471	-52.7		286	42.7	28	14,584	-52.8		274	40.4																																																																																																																																																																																																																																																																																																																																																																																																														
125----	20	14,465	-49.9		282	16.5	23	14,807	-58.4		265	68.6	28	14,429	-48.4		162	12.4	28	16,643	-54.5		286	42.7	28	16,584	-52.8		274	38.9	28	16,643	-54.5		286	42.7	28	16,584	-52.8		274	38.9																																																																																																																																																																																																																																																																																																																																																																																																														
100----	18	15,920	-52.4		275	12.0	22	16,195	-61.3		265	61.0	25	15,913	-48.6		148	12.4	26	16,064	-57.0		284	33.2	28	16,018	-54.9		275	30.7	28	16,064	-57.0		284	33.2	28	16,018	-54.9		275	30.7																																																																																																																																																																																																																																																																																																																																																																																																														
80----	16	18,121	-57.8		292	27.2	22	18,147	-68.3		23	16,226	-65.7		20	16,226	-65.7		26	16,155	-58.9		285	25.3	28	17,442	-56.0		276	22.9	28	17,442	-56.0		285	25.3	28	17,442	-56.0		276	22.9																																																																																																																																																																																																																																																																																																																																																																																																														
60----	16	19,325	-58.9		309	9.1	26	19,338	-55.9		21	17,569	-66.5		20	19,321	-63.1		26	17,551	-59.3		285	25.3	28	17,442	-56.0		276	22.9	28	17,551	-59.3		285	25.3	28	17,442	-56.0		276	22.9																																																																																																																																																																																																																																																																																																																																																																																																														
50----	25	20,472	-58.7		332	5.4	26	20,482	-58.4		20	20,445	-61.8		20	20,445	-61.8		24	20,494	-58.9		22	21,902	-57.4	28	21,853	-52.5		192	6.4	28	20,494	-58.9		22	21,902	-57.4	28	21,853	-52.5		192	6.4																																																																																																																																																																																																																																																																																																																																																																																																												
40----	23	21,874	-57.5		27	4.3	21	21,887	-57.1		19	21,831	-59.1		19	21,831	-59.1		22	21,902	-57.4		22	21,902	-57.4	28	21,853	-52.5		192	6.4	28	21,902	-57.4		22	21,902	-57.4	28	21,853	-52.5		192	6.4																																																																																																																																																																																																																																																																																																																																																																																																												
30----	21	23,694	-56.4		73	6.2	18	23,707	-56.1		19	23,644	-57.3		18	23,644	-57.3		16	23,728	-56.1		21	23,728	-56.1	28	23,689	-54.3		360	4.5	28	23,728	-56.1		21	23,728	-56.1	28	23,689	-54.3		360	4.5																																																																																																																																																																																																																																																																																																																																																																																																												
25----	12	26,275	-54.6		90	8.4					15	26,210	-53.9		15	26,210	-53.9		9	26,302	-55.8		24	26,302	-55.8	28	26,275	-54.6		90	8.4	28	26,302	-55.8		24	26,302	-55.8	28	26,275	-54.6		90	8.4																																																																																																																																																																																																																																																																																																																																																																																																												
20----	7	28,175	-51.3								9	28,060	-52.5		9	28,060	-52.5									28	28,175	-51.3																																																																																																																																																																																																																																																																																																																																																																																																																												</

DENVER, COLO. (834 MB.)										DODGE CITY, KANS. (924 MB.)										EL PASO, TEX. (880 MB.)										ELY, NEV. (807 MB.)										FAIRBANKS, ALASKA (998 MB.)									
SURFACE	28	1,611	- 2.9	73	235	1.7	28	792	- 3.7	84	190	1.4	28	1,197	6.4	57	314	5.2	28	1,908	- 2.7	81	178	6.0	28	135	-18.6	62	23	2.7																			
1,000----	28	151					28	164				.0	28	134					28	171					28	120			32	4.7																			
950-----	28	564					28	574				.0	28	558					28	591					28	513	-12.4	51	73	8.5																			
900-----	28	1,001					28	1,003	- 2.3	73	172	2.1	28	1,010					28	1,030					28	923	-11.8	50	90	13.6																			
850-----	28	1,461					28	1,459	- 1.6	63	262	4.7	28	1,485	8.8				28	1,490					28	1,362	-10.4	50	99	8.4																			
800-----	28	1,947	1.5	47	298	7.0	28	1,945	.3	58	294	9.9	28	1,985	6.4	47	300	8.9	28	1,974	- 1.1	76	181	4.7	28	1,828	-10.7	45	98	5.1																			
750-----	28	2,464	.0	43	317	13.6	28	2,459	- 1.2	51	297	15.5	28	2,956	3.0	52	290	11.1	28	2,990	- .9	62	217	6.0	28	2,322	-12.6	41	77	1.6																			
700-----	28	3,015	- 4.0	43	310	16.7	28	3,009	- 4.3	49	304	16.3	28	3,067	- .9	54	289	13.2	28	3,039	- 4.2	58	251	9.7	28	2,847	-15.3	39	289	2.7																			
650-----	28	3,595	- 8.3	47	311	20.4	28	3,586	- 8.0	49	306	19.6	28	3,648	- .4	57	289	17.9	28	3,617	- 7.7	53	273	15.2	28	3,400	-18.6	38	287	4.9																			
600-----	28	4,212	-12.6	49	313	24.1	28	4,207	-12.1	47	303	20.6	28	4,282	- 8.2		293	21.4	28	4,239	-11.7	47	277	15.7	28	3,995	-22.4	38	280	7.8																			
550-----	28	4,869	-17.2	49	316	24.7	28	4,864	-16.8	47	298	21.6	28	4,947	-12.9		286	22.9	28	4,899	-16.0	43	281	18.7	28	4,627	-26.1		274	10.9																			
500-----	28	5,579	-22.2	47	313	23.9	28	5,576	-21.3	43	298	25.8	28	5,673	-17.9		286	21.8	28	5,612	-20.9	44	291	25.8	28	5,314	-30.5		266	18.3																			
450-----	28	6,341	-27.8	44	308	26.4	28	6,338	-27.0	42	293	23.9	28	6,444	-23.6		279	25.5	28	6,378	-26.5	43	281	25.6	28	6,050	-35.8		271	21.0																			
400-----	28	7,133	-34.0		308	27.6	28	7,184	-33.6	40	287	21.2	28	7,305	-29.8		281	21.8	28	7,223	-33.3	41	279	18.8	28	6,864	-42.3		260	22.0																			
350-----	28	8,104	-41.3		304	29.3	28	8,106	-40.7		289	20.0	28	8,243	-36.9		275	23.5	28	8,187	-40.7		270	24.3	28	7,755	-48.1		268	25.8																			
300-----	28	9,134	-49.4		305	32.6	28	9,138	-48.6		266	20.6	28	9,292	-45.1		277	22.2	28	9,200	-48.5		262	22.9	28	8,758	-53.6		253	18.3																			
250-----	28	10,310	-56.5		297	38.3	28	10,318	-55.4		262	31.3	28	10,487	-53.4		265	27.4	27	10,361	-55.9		272	21.8	28	9,927	-54.5		234	12.0																			
200-----	27	11,722	-57.9		294	42.0	28	11,731	-57.3		275	44.5	26	11,905	-56.5				27	11,769	-57.8				28	11,370	-49.9		215	8.7																			
175-----	26	12,560	-55.8		292	40.2	28	12,581	-54.7		271	43.5	25	12,752	-56.8				27	12,614	-56.4				27	12,248	-47.8		213	6.4																			
150-----	26	13,546	-54.9		294	38.7	28	13,569	-54.3		273	45.9	25	13,729	-58.6				27	13,594	-55.9				25	13,265	-47.2		200	6.4																			
125-----	26	14,708	-56.4		294	34.4	28	14,735	-55.9		274	48.0	24	14,866	-61.7				26	14,749	-57.3				25	14,472	-47.5		197	6.2																			
100-----	26	16,121	-57.8		292	27.2	28	16,147	-58.3				23	16,262	-65.7				26	16,155	-58.9				25	15,944	-48.5		199	7.2																			
80-----	26	17,523	-58.9		301	19.2	27	17,544	-60.1				21	17,569	-66.5				26	17,551	-59.9				23	17,405	-48.9		203	6.6																			
60-----	26	19,325	-58.9		309	9.1	26	19,338	-59.5				20	19,321	-63.1				26	19,350	-59.4				21	19,296	-50.2		198	6.8																			
50-----	25	20,472	-58.7		332	5.4	26	20,482	-58.4				20	20,445	-61.8				24	20,494	-58.9				20	20,485	-51.3		192	6.4																			
40-----	23	21,874	-57.5		27	4.3	23	21,887	-57.6				19	21,831	-59.1				22	21,902	-57.4				18	21,938	-52.9																						
30-----	23	23,694	-56.4		27	6.7	22	23,707	-56.1				18	23,644	-57.3				21	23,728	-58.1				14	23,772	-55.8																						
25-----	17	24,859	-53.3		73	8.2	9	24,870	-55.7				18	24,793	-55.5				16	24,870	-55.5				12	24,934	-57.5																						
20-----	12	26,275	-54.6		90	8.4							15	26,210	-53.9				9	26,302	-55.8				7	26,247	-60.0																						
15-----	7	28,175	-51.3										15	28,060	-52.5										5	28,031	-58.5																						

Average monthly values

FEBRUARY 1958

See reference note at end of table.

RAWINSONDE DATA

Average monthly values

FEBRUARY 1958

MONTGOMERY, ALA. (1011 MB.)										NANTUCKET, MASS. (1002 MB.)										NASHVILLE, TENN. (997 MB.)										N. Y. INT. AP. IDLEWILD (1007 MB.)										NOME, ALASKA (1010 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity																				
				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed	Direction	Speed																	
				Wind	Wind				Wind	Wind				Wind	Wind				Wind	Wind				Wind	Wind				Wind	Wind	Wind	Wind																	
SURFACE	28	61	1.1	69	293	2.7	25	14	- 4.1	71	314	4.7	28	177	- 4.2	79	300	4.3	28	5	- 4.0	59	299	8.2	28	7	-10.4	66	62	7.6																			
1,000--	28	150	1.7	61	313	4.9	25	29	- 5.5	67	328	8.4	28	146			309	7.6	28	59			304	9.5	28	82			65	9.5																			
950--	28	566	1.1	54	292	10.3	25	430	- 5.5	67	292	12.0	28	551	- 3.6	65	305	10.9	28	463	- 6.6	63	311	16.9	28	479	- 7.6	46	77	15.3																			
900--	28	999	1.2	50	287	16.3	25	855	- 7.3	63	281	14.6	28	979	- 5.1	52	306	18.5	28	1,325	- 9.8	68	317	17.2	28	1,346	- 8.3	49	86	13.8																			
850--	28	1,459	- 2.0	51	283	20.0	25	1,300	- 8.4	60	279	16.7	28	1,429	- 5.1	52	306	18.5	28	1,325	- 9.8	68	317	17.2	28	1,346	- 8.3	49	86	13.8																			
800--	28	1,944	- 1.0	49	285	24.3	25	1,770	- 9.2	57	277	19.4	28	1,906	- 5.7	50	302	20.2	28	1,793	-10.0	61	297	17.1	28	1,816	- 9.7	47	93	10.7																			
750--	28	2,459	- 3.1	47	285	28.6	25	2,269	-10.5	56	276	23.3	28	2,412	- 7.0	50	301	23.3	28	2,293	-11.1	59	291	19.0	28	2,308	-11.7	44	96	9.9																			
700--	28	3,003	- 5.1	42	282	33.6	25	2,797	-12.9	57	278	24.3	28	2,948	- 8.9	45	296	25.6	28	2,818	-13.0	55	285	24.3	28	2,839	-14.0	110	6.6																				
650--	28	3,579	- 8.0	40	280	38.5	25	3,359	-15.6	56	272	26.6	28	3,517	-11.6	41	298	28.6	28	3,381	-15.6	53	286	29.9	28	3,394	-17.4	128	5.4																				
600--	28	4,201	-11.6	37	278	42.2	25	3,961	-18.1	48	276	26.0	28	4,129	-15.0	39	296	28.0	28	3,982	-18.5	45	283	32.1	28	3,993	-21.1	135	5.4																				
550--	28	4,862	-15.7		280	46.4	24	4,598	-21.8		280	30.5	28	4,779	-18.9	40	282	28.6	28	4,624	-21.8	43	283	34.2	28	4,625	-25.3	151	5.2																				
500--	28	5,577	-20.0		279	52.5	24	5,297	-26.2		280	30.5	28	5,487	-23.5		279	32.6	28	5,324	-25.7		282	35.4	28	5,316	-30.2	37	175	7.4																			
450--	28	6,350	-25.3		275	58.4	24	6,046	-31.2		280	30.5	28	6,241	-28.7		270	21.8	28	6,089	-30.2		284	40.8	28	6,051	-35.5	188	9.5																				
400--	28	7,198	-30.9		273	65.1	24	6,878	-36.7		280	30.5	28	7,084	-35.0				28	6,921	-36.1		286	48.4	28	6,764	-47.5	208	11.1																				
350--	27	8,131	-37.3		271	75.4	24	7,792	-42.5		280	30.5	28	8,003	-41.4				28	7,835	-42.5		276	48.4	28	7,651	-48.6	228	10.9																				
300--	27	9,182	-43.7		267	81.0	24	8,821	-47.7		280	30.5	28	9,037	-47.0				28	8,863	-48.6		279	51.5	28	8,769	-53.1	206	13.0																				
250--	27	10,391	-49.5		267	88.2	24	10,018	-49.8		280	30.5	28	10,232	-51.6				28	10,051	-51.6		273	53.2	28	9,937	-55.1	205	9.7																				
200--	26	11,833	-52.0		265	93.3	24	11,479	-48.7		280	30.5	28	11,667	-52.3				28	11,501	-50.4		275	50.5	28	11,375	-50.6	194	11.3																				
175--	25	12,705	-53.5		264	91.5	24	12,359	-47.9		280	30.5	28	12,545	-52.2				27	12,375	-49.3		274	47.0	28	12,249	-48.8	175	12.2																				
150--	25	13,692	-56.1		264	81.1	24	13,375	-48.3		280	30.5	28	13,561	-52.8				27	13,386	-49.5		270	43.1	28	13,265	-47.7	172	11.5																				
125--	25	14,843	-59.1		266	68.2	23	14,572	-50.2		280	30.5	28	14,713	-55.2				27	14,375	-51.6		270	39.4	28	14,469	-47.7	173	11.9																				
100--	24	16,234	-62.6		267	53.0	22	16,031	-52.1		280	30.5	28	16,116	-57.1				26	16,008	-53.6		270	33.0	28	15,942	-47.9	180	13.4																				
80--	24	17,606	-63.8		266	38.9	22	17,472	-53.3		280	30.5	28	17,524	-58.4				26	17,440	-54.3		273	26.0	28	17,446	-48.6	168	11.1																				
60--	24	19,381	-61.4		270	22.9	21	19,133	-53.5		280	30.5	28	19,331	-58.2				26	19,280	-55.2		275	11.9	28	19,302	-49.6	172	10.9																				
40--	23	20,521	-59.4		268	18.1	21	20,496	-53.9		280	30.5	28	20,482	-57.5				25	20,448	-54.7		283	8.0	28	20,494	-50.5	170	10.5																				
50--	22	21,922	-57.5		270	10.3	21	21,930	-54.4		280	30.5	28	21,904	-55.9				22	21,874	-54.6		284	4.7	28	21,945	-52.1	182	8.4																				
20--	21	23,752	-55.2		267	4.3	19	23,777	-53.6		280	30.5	28	23,747	-54.3				5	23,710	-53.5				25	23,786	-54.3	198	5.6																				
25--	19	24,925	-53.1		266	5.6	16	24,957	-51.5		280	30.5	28	24,906	-53.8										24	24,953	-55.1	206	6.6																				
20--	11	26,346	-51.8					26,402	-50.4		280	30.5	28	26,331	-52.7										18	26,401	-55.9	138	1.4																				
15--											280	30.5	28												14	28,226	-55.5																						

NORFOLK, VA. (1010 MB.)										NORTH PLATTE, NEB. (917 MB.)										OAKLAND, CALIF. (1014 MB.)										OKLAHOMA CITY, OKLA. (972 MB.)										OMAHA, NEB. (970 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity																				
				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed	Direction	Speed																	
				Wind	Wind				Wind	Wind				Wind	Wind				Wind	Wind				Wind	Wind				Wind	Wind	Wind	Wind																	
SURFACE	28	9	- 0.1	66	264	7.6	28	848	- 6.8	86	314	2.3	28	6	10.9	87	126	4.9	28	392	- 0.7	82	15	2.3	28	403	-10.2	81	346	2.7																			
1,000--	28	89	- .5	56	278	8.2	28	162			28	125	11.6	80	136	6.0	28	161		28	161				28	163			328	7.0																			
950--	28	498	- 1.3	55	287	15.0	28	566			28	550	9.9	77	177	11.1	28	569	- 1.1	66	251	1.7	28	584	- 9.7	67	325	7.0																					
900--	28	939	- 1.2	50	289	16.3	28	991	- 5.8	77	284	2.3	28	1,000	- 9.8	73	201	13.2	28	1,005	- 2.2	66	268	1.6	28	962	- 5.9	58	318	7.5																			
850--	28	1,381	- 5.2	57	292	23.5	28	1,442	- 3.3	67	306	8.7	28	1,471	- 5.3	70	213	15.2	28	1,464	- 5.5	65	261	6.7	28	984	- 9.7	67	325	7.0																			
800--	28	1,856	- 6.7	54	289	25.8	28	1,922	- 3.0	62	313	11.5	28	1,965	- 2.9	64	232	15.5	28	1,950	- 1.1	60	294	12.4	28	1,906	- 5.8	46	311	15.2																			
750--	28	2,358	- 8.4	54	281	27.8	28	2,430	- 3.7	58	314	16.9	28	2,483	- 3	55	241	16.3	28	2,466	- 1.8	58	296	15.9	28	2,411	- 7.1	46	314	17.5																			
700--	28	2,893	-10.8	54	276	30.7	28	2,975	- 6.3	57	317	23.9	28	3,036	- 2.9	53	236	20.4	28	3,012	- 4.3	49	303	19.2	28	2,948	- 9.0	47	313	22.5																			
650--	28	3,458	-13.1	51	276	36.1	28	3,543	- 9.8	58	313	24.9	28	3,615	- 6.4	50	238	21.8	28	3,586	- 8.2	50	305	21.4	28	3,518	-11.7	45	313	26.6																			
600--	28	4,067	-15.9	47	274	41.0	28	4,165	-13.7	59	307	27.0	28	4,242	-10.4	48	242	21.6	28	4,208	-12.4	51	303	24.7	28	4,129	-15.0	42	310	28.4																			
550--	28	4,715	-19.5	47	274	42.2	28	4,815	-17.9	54	309	29.8	28	4,898	-14.9	52	243	22.5	28	4,861	-16.8	50	299	25.8	28	4,779	-19.4	41	310	30.7																			
500--	28	5,420	-23.9	46	272	44.1	28	5,527	-22.7	52	302	27.4	28	5,622	-20.0	50	249	26.4	28	5,577	-21.2		292	23.7	28	5,484	-2																						

Average monthly values

FEBRUARY 1958

See reference note at end of table

Average monthly values

FEBRUARY 1958

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 10 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been

computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

FEBRUARY 1958

Date	Sun's zenith distance								
	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Feb. 1-----	----	----	----	----	----	1.47	1.35	1.24	1.13
2-8-----	----	----	----	----	Cloudy	----	----	----	----
9-----	1.04	1.17	1.26	1.41	----	----	----	----	----
10-----	1.05	1.15	----	----	----	----	----	----	----
11-----	----	----	----	----	Cloudy	----	----	----	----
12-----	1.13	1.24	1.35	1.51	1.57	----	----	----	----
13-----	----	----	----	----	Cloudy	----	----	----	----
14-----	1.09	1.22	1.34	1.47	1.55	1.47	----	----	----
15-----	1.07	1.17	1.28	1.42	----	----	----	----	----
16-----	----	----	----	----	Cloudy	----	----	----	----
17-----	----	----	----	----	----	1.44	----	----	----
18-----	1.09	1.19	1.31	1.45	1.52	1.42	1.23	1.16	1.03
19-22-----	----	----	----	----	Cloudy	----	----	----	----
23-----	----	----	----	----	----	1.37	1.21	1.08	----
24-27-----	----	----	----	----	Cloudy	----	----	----	----
28-----	----	----	----	----	1.47	1.36	1.20	1.01	----
Aver-ages	1.08	1.19	1.31	1.45	1.53	1.42	1.25	1.12	1.08

† LINCOLN, NEBR.									
	Air mass								
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Feb. 1-----	0.91	1.00	1.09	1.23	1.25	1.24	1.10	0.99	-----
2-----	-----	-----	1.06	1.17	1.21	-----	1.01	.89	0.81
11-----	.78	.99	1.10	1.26	1.29	-----	-----	.99	.85
12-----	-----	-----	-----	-----	-----	-----	-----	.99	.86
15-----	.85	.96	1.05	1.22	1.27	1.21	1.08	.97	-----
22-----	.79	.90	1.00	1.21	1.13	1.13	.97	.90	.81
24-----	.78	.85	-----	-----	1.27	1.19	1.05	.92	.80
25-----	.78	.86	.96	1.10	1.13	1.03	.80	.72	.62
Aver-ages	.82	.92	1.04	1.20	1.22	1.16	1.00	.91	.79

GUAM, M. I. (WBO)									
	Air mass								
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Feb. 9-----	M0.74	M0.89	M1.03	-----	-----	-----	-----	-----	-----
20-----	-----	M.50	M.54	-----	-----	-----	-----	-----	-----
22-----	-----	M.82	-----	M1.06	-----	-----	-----	-----	-----
25-----	-----	-----	M.68	-----	-----	-----	-----	-----	-----
Aver-ages	.74	.74	.75	1.06	-----	-----	-----	-----	-----

OMAHA, NEBR.									
	Air mass								
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Feb. 2-----	M0.21	M0.23	-----	0.29	M0.29	-----	-----	-----	-----
3-----	-----	-----	M0.26	M.29	M.30	-----	-----	-----	-----
10-----	-----	-----	S.30	S.32	S.32	-----	-----	-----	-----
11-----	S.24	S.26	S.28	S.32	S.32	-----	-----	-----	-----
15-----	S.22	S.24	S.27	S.31	M.32	S0.30	S0.26	S0.20	S0.17
16-----	M.21	M.24	M.26	-----	-----	-----	-----	-----	-----
19-----	-----	-----	M.28	M.30	-----	-----	-----	-----	-----
22-----	M.22	M.24	M.26	M.30	M.30	-----	-----	-----	-----
24-----	-----	-----	-----	-----	-----	S.21	S.14	S.10	S.09
25-----	I.19	I.21	I.24	I.26	.28	.24	.20	.17	.14
Aver-ages	.22	.24	.26	.30	.30	.25	.20	.16	.13

H Haze

M Moderate haze - indeterminate

I Intense haze - indeterminate

S Slight haze - indeterminate

† Data for Nov. and Dec. 1957 are 2% too high; corrected data will appear in June 1958 issue.

	Sun's zenith distance								
Date	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
BLUE HILL, MASS.									
	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	1.94	3.92	4.89
Feb.									
3-----	0.97	1.08	1.24	1.36	1.38	1.36	1.20	1.08	0.99
5-----	-----	-----	-----	-----	-----	-----	-----	.97	.90
6-----	.95	1.05	1.17	1.31	1.38	1.34	1.19	1.05	.95
11-----	.94	1.05	1.15	1.34	1.36	1.34	M1.08	M.94	M.82
12-----	H.67	H.84	H.98	H1.06	-----	-----	-----	-----	-----
14-----	H.66	H.75	-----	1.11	-----	1.25	1.06	.96	.87
15-----	.81	.95	1.09	1.29	1.29	-----	-----	-----	-----
18-----	.90	1.04	1.15	1.33	1.39	1.28	1.13	.99	.82
19-----	.99	1.11	1.23	1.37	1.40	1.33	1.16	1.03	.89
20-----	-----	-----	-----	-----	1.41	1.36	-----	-----	-----
Aver- ages	.86	.98	1.14	1.27	1.37	1.32	1.14	1.00	.89

WASHINGTON, D. C. (WBCO)									
	Air mass								
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
Feb. 9-----	0.93	1.04	1.17	-----	-----	-----	-----	-----	-----
10-----	.81	.92	-----	-----	-----	-----	-----	-----	-----
20-----	-----	-----	-----	-----	1.36	1.26	1.10	0.94	0.82
24-----	-----	-----	-----	-----	-----	1.14	.98	.86	.75
Aver-ages	.87	.98	1.17	-----	1.36	1.20	1.04	.90	.78

TUCSON, ARIZ.									
	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Feb. 11-----	0.93	1.01	1.23	1.29	-----	-----	-----	-----	-----
12-----	1.01	1.09	1.23	1.39	1.46	-----	-----	-----	-----
14-----	.97	1.04	1.19	1.35	-----	-----	-----	-----	-----
18-----	.98	1.07	1.18	1.30	1.42	-----	-----	-----	-----
27-----	.69	.84	1.17	1.30	1.35	1.11	0.88	0.72	0.63
Aver-ages	.92	1.01	1.20	1.33	1.41	1.11	.88	.72	.63

MAUNA LOA OBS., HAWAII									
	Air mass								
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Feb. 1-----	1.35	1.43	1.53	1.64	1.69	1.57	1.47	1.36	1.18
2-----	-----	-----	-----	-----	1.71	1.57	1.48	1.39	1.31
5-----	1.28	1.36	1.47	1.58	1.69	1.57	1.45	1.34	1.26
6-----	1.33	1.41	1.50	1.61	1.67	1.55	-----	-----	-----
7-----	1.34	1.42	1.51	1.62	1.67	1.53	1.42	1.31	1.24
9-----	1.31	1.39	1.48	1.59	-----	1.55	1.45	1.36	1.29
10-----	1.29	1.36	1.47	1.59	1.69	1.55	1.40	1.28	1.19
11-----	1.22	1.33	1.43	1.55	1.63	-----	-----	-----	-----
12-----	1.25	1.35	1.46	1.58	1.66	-----	-----	-----	-----
13-----	1.26	1.35	1.45	1.55	1.65	1.52	1.35	1.22	1.10
14-----	1.23	1.31	1.42	1.55	1.66	1.52	1.40	1.30	1.20
15-----	1.27	1.35	1.46	1.58	1.69	1.57	1.45	1.35	1.25
16-----	1.34	1.42	1.52	1.63	1.74	1.62	1.50	1.39	1.27
19-----	-----	-----	-----	1.64	1.73	1.58	-----	-----	-----
21-----	-----	-----	-----	-----	-----	1.57	1.44	1.31	1.19
25-----	-----	-----	-----	1.54	1.66	-----	-----	-----	-----
26-----	-----	-----	-----	-----	1.68	-----	-----	-----	-----
28-----	1.25	1.33	1.42	-----	-----	-----	-----	-----	-----
Aver-ages	1.29	1.37	1.47	1.59	1.68	1.56	1.44	1.31	1.21

* Values corresponding to true solar noon

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station

listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

FEBRUARY 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

	Avg															Avg																Avg
Date-----	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25											
Langleys-----	131	47	82	45	155	67	55	83	119	172	74	84	45	199	83	111	60	59	131	141	141	158	137	118								
Date-----	26	27	28	1	2	3	4																									
Langleys-----	102	64	83	152	65	69	102	91																								

Note: Langley is the unit used to denote one gram calorie per square centimeter.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

FEBRUARY 1958

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys . . .	*-28	16	55	82	*-17	*-12	*36	116	98	124	111	127	115	114	*-19	16	31	30	155	138	128	83	180	125	HW	*-13	*48	247				78

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. FEBRUARY 1958

1958	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Cape Hatteras, N. C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Elly, Nev.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Grand Lake, Colo.
Feb. 5-----	179	189	431	86	218	14	88	140	231	134	209	267	388	213	327	63	227	---	145	49	80	421	270	98	226	325	449	187	52	191
Feb. 6-----	418	76	226	40	29	15	94	293	321	183	272	---	175	290	190	50	191	---	163	116	95	439	245	107	230	226	399	192	273	200
Feb. 7-----	394	30	344	134	46	24	106	301	85	---	69	470	404	305	181	76	365	---	135	411	270	404	195	167	230	167	364	192	253	265
Feb. 8-----	361	50	498	45	447	11	113	227	47	92	39	285	427	74	418	191	220	---	200	82	340	399	191	65	396	167	499	155	280	295
Feb. 9-----	380	27	463	36	354	29	109	261	212	143	187	31	486	221	381	207	325	---	70	77	274	382	346	69	48	200	467	226	98	214
Feb. 10-----	423	84	465	105	442	28	95	264	348	200	292	202	474	312	413	224	319	---	183	109	185	435	340	58	28	298	532	156	172	190
Feb. 11-----	296	43	368	19	410	34	84	317	351	301	288	76	114	276	140	235	390	42	111	98	287	284	386	75	139	212	111	253	188	266
Average-----	350	71	399	66	278	22	98	257	228	176	194	222	310	242	293	149	291	---	144	135	219	395	282	(77)	213	242	403	203	186	232
Feb. 12-----	456	94	396	32	367	41	93	334	261	86	232	196	453	332	428	351	377	106	91	428	337	472	111	78	422	79	484	318	271	347
Feb. 13-----	422	147	539	152	470	46	72	184	225	164	212	438	157	130	134	269	365	178	329	60	312	384	316	35	441	376	507	242	180	326
Feb. 14-----	464	79	497	29	404	41	133	315	351	133	319	445	487	262	435	245	101	116	105	435	241	488	219	---	35	269	514	334	330	273
Feb. 15-----	451	74	174	65	83	40	141	358	337	53	297	507	51	336	152	163	415	24	160	182	223	455	386	89	331	360	290	324	247	252
Feb. 16-----	457	138	535	153	510	56	57	371	47	193	37	288	415	197	468	287	417	82	126	177	362	485	288	95	441	379	468	212	302	138
Feb. 17-----	462	79	351	36	517	48	142	230	321	84	302	235	445	240	484	315	424	83	274	410	370	489	308	104	256	336	519	193	390	176
Feb. 18-----	475	47	541	86	509	54	140	202	401	248	372	303	515	195	479	250	403	132	26	428	358	489	277	110	81	71	534	258	335	383
Average-----	415	94	434	79	408	47	111	285	278	137	253	345	361	242	369	269	357	103	159	303	315	466	272	85	287	267	474	269	294	271
Feb. 19-----	405	81	530	184	512	64	170	192	399	228	370	58	513	180	477	187	428	140	99	62	228	445	239	101	96	86	514	332	307	398
Feb. 20-----	321	109	556	171	503	74	164	148	397	195	370	95	483	288	462	357	394	---	387	157	411	261	350	81	113	270	532	286	345	373
Feb. 21-----	356	14	535	45	501	60	96	362	138	348	88	157	536	285	453	205	74	---	263	(414)	107	251	421	70	162	323	517	355	405	412
Feb. 22-----	288	112	---	79	389	89	71	357	158	337	142	377	272	237	309	288	417	80	162	450	256	284	429	80	140	249	464	338	401	416
Feb. 23-----	465	89	---	117	455	70	102	355	151	318	128	354	536	323	479	328	402	220	252	425	385	318	358	131	363	276	387	291	396	400
Feb. 24-----	396	64	267	141	434	66	109	366	176	52	157	245	522	362	332	282	362	---	33	419	206	461	373	127	377	90	391	305	244	419
Feb. 25-----	237	137	86	185	271	65	168	354	220	220	205	421	457	158	380	198	390	---	271	448	399	446	317	137	326	287	112	---	54	191
Average-----	353	86	395	132	438	64	126	305	234	243	209	244	474	262	413	264	353	---	210	(339)	284	352	355	104	225	226	417	318	307	373
Feb. 26-----	214	44	348	249	431	70	114	25	384	292	355	498	57	385	109	90	108	---	421	99	205	372	372	137	302	424	372	147	182	395
Feb. 27-----	548	108	469	277	516	77	243	92	66	321	46	533	145	252	184	193	46	---	321	153	80	556	427	131	505	398	367	232	408	174
Feb. 28-----	544	13	565	367	253	73	190	176	91	347	36	520	550	213	499	73	75	---	---	247	169	535	504	89	510	362	548	228	271	170
Mar. 1-----	527	157	514	374	521	81	144	141	175	412	117	380	562	183	513	76	30	---	461	453	68	366	478	64	80	451	---	---	348	359
Mar. 2-----	534	140	147	217	496	82	132	222	241	125	198	208	221	91	124	109	---	---	465	364	136	457	507	50	302	461	537	372	441	327
Mar. 3-----	296	122	503	386	519	77	154	217	143	346	114	319	418	184	446	208	293	---	438	446	160	472	502	157	488	400	318	374	440	---
Mar. 4-----	163	61	573	157	522	89	101	374	114	374	143	248	558	281	---	100	452	---	474	107	164	367	478	67	78	452	362	370	459	---
Average-----	404	92	446	290	466	78	154	178	173	358	134	385	357	246	307	123	159	---	430	267	140	449	467	99	323	421	417	281	364	285

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

FEBRUARY 1958

	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyo, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Phoenix, Ariz.	Portland, Me.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.
1958																														
Feb. 5-----	133	110	309	---	416	222	157	252	183	363	49	293	85	383	238	136	---	487	---	59	188	252	346	16	144	373	268	110	208	307
Feb. 6-----	85	46	34	---	403	255	226	357	221	311	37	149	38	367	319	140	93	473	---	89	201	114	272	22	242	391	---	38	328	342
Feb. 7-----	145	55	33	---	374	52	447	169	260	352	96	254	304	268	266	95	225	116	---	155	60	17	283	37	390	373	202	116	256	217
Feb. 8-----	186	364	417	---	459	253	465	310	252	308	399	270	337	159	161	---	193	515	---	391	59	279	321	398	189	221	51	409	230	297
Feb. 9-----	284	375	437	---	448	235	162	364	230	398	448	197	107	322	308	---	252	513	---	373	245	210	335	408	96	325	---	409	235	325
Feb. 10-----	166	369	409	---	418	310	35	211	145	382	435	366	76	279	266	61	154	368	---	348	303	322	369	394	133	325	---	401	197	285
Feb. 11-----	183	353	434	---	416	268	269	320	250	428	466	373	349	315	337	32	85	331	---	372	342	282	385	403	171	428	324	318	(250)	385
Average-----	169	239	296	---	419	228	252	283	220	363	276	272	185	305	271	93	167	400	---	255	200	211	330	240	195	356	211	257	(243)	308
Feb. 12-----	136	359	382	---	240	293	191	179	360	236	440	380	348	---	70	42	82	359	---	354	312	108	357	336	421	448	315	374	390	215
Feb. 13-----	177	367	472	---	484	330	502	250	378	442	242	155	330	---	418	90	217	452	---	397	203	311	225	409	250	429	---	369	252	385
Feb. 14-----	206	320	436	182	---	234	58	370	303	382	285	234	132	399	342	122	84	381	---	199	357	346	306	329	201	433	320	381	332	339
Feb. 15-----	274	64	89	258	---	166	413	389	301	391	115	430	289	398	354	155	92	329	---	98	296	133	434	67	292	445	113	40	307	374
Feb. 16-----	275	413	512	356	---	110	472	377	269	440	353	349	270	378	399	93	---	534	---	454	78	58	416	465	228	457	113	414	211	435
Feb. 17-----	181	430	517	425	---	199	223	355	118	441	489	267	239	368	388	129	169	516	---	448	313	177	342	465	424	461	---	459	325	453
Feb. 18-----	244	431	514	371	---	269	161	392	324	351	452	294	261	198	174	144	70	481	---	436	400	388	350	469	151	455	---	419	221	275
Average-----	213	341	417	318	---	230	289	330	293	383	339	302	252	348	311	111	119	436	---	341	280	217	347	363	281	447	273	351	291	354
Feb. 19-----	299	427	528	156	---	210	155	353	386	121	394	252	296	211	153	42	139	420	---	447	395	367	401	439	117	---	---	427	280	83
Feb. 20-----	290	424	517	419	---	231	454	340	320	384	431	114	329	489	395	96	274	451	61	444	390	402	191	398	135	171	---	428	390	423
Feb. 21-----	273	436	513	77	---	321	197	405	364	438	363	258	283	482	390	83	256	450	53	388	351	---	225	402	287	415	191	454	355	464
Feb. 22-----	320	431	107	---	123	37	419	401	435	133	403	283	236	171	168	87	85	424	74	250	140	---	398	232	263	(462)	---	250	387	419
Feb. 23-----	239	425	430	415	---	215	71	201	352	387	488	285	322	223	186	---	(224)	442	243	458	260	---	279	460	367	421	---	446	361	343
Feb. 24-----	215	425	381	379	---	322	196	426	406	449	474	412	361	145	142	115	126	494	500	431	176	---	412	433	388	478	68	448	404	304
Feb. 25-----	185	317	289	430	---	179	---	249	124	312	448	405	336	449	470	84	125	492	478	256	319	---	394	244	439	127	180	346	320	293
Average-----	260	391	444	283	---	229	185	342	336	361	390	305	309	310	272	85	(175)	453	235	382	290	---	329	377	285	(346)	---	400	357	333
Feb. 26-----	15	39	280	192	---	327	136	279	320	524	150	48	93	467	485	60	220	130	326	247	380	---	30	188	317	527	407	26	222	517
Feb. 27-----	153	60	442	35	---	65	496	347	279	490	222	18	293	444	450	171	207	298	537	145	95	---	28	209	475	520	104	81	145	515
Feb. 28-----	295	442	515	94	---	108	514	231	238	456	84	54	436	349	342	144	363	421	543	221	96	---	32	(474)	512	515	49	476	197	360
Mar. 1-----	427	450	527	62	---	46	362	332	347	496	142	305	269	463	467	158	384	358	84	461	124	---	257	416	340	494	165	467	218	505
Mar. 2-----	290	192	520	131	---	97	369	432	412	509	443	212	391	273	285	175	385	512	211	349	377	---	262	379	385	453	156	140	249	382
Mar. 3-----	393	410	518	197	---	153	431	301	(386)	518	186	287	418	425	449	143	398	227	227	491	245	---	(255)	(490)	511	303	236	377	277	525
Mar. 4-----	255	464	540	119	---	343	486	299	375	526	423	366	402	466	481	---	380	319	93	466	206	---	432	498	260	227	137	488	297	550
Average-----	285	294	477	119	---	163	399	317	(337)	503	236	184	329	412	423	142	334	324	289	340	218	---	(185)	(379)	400	434	179	294	244	479

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

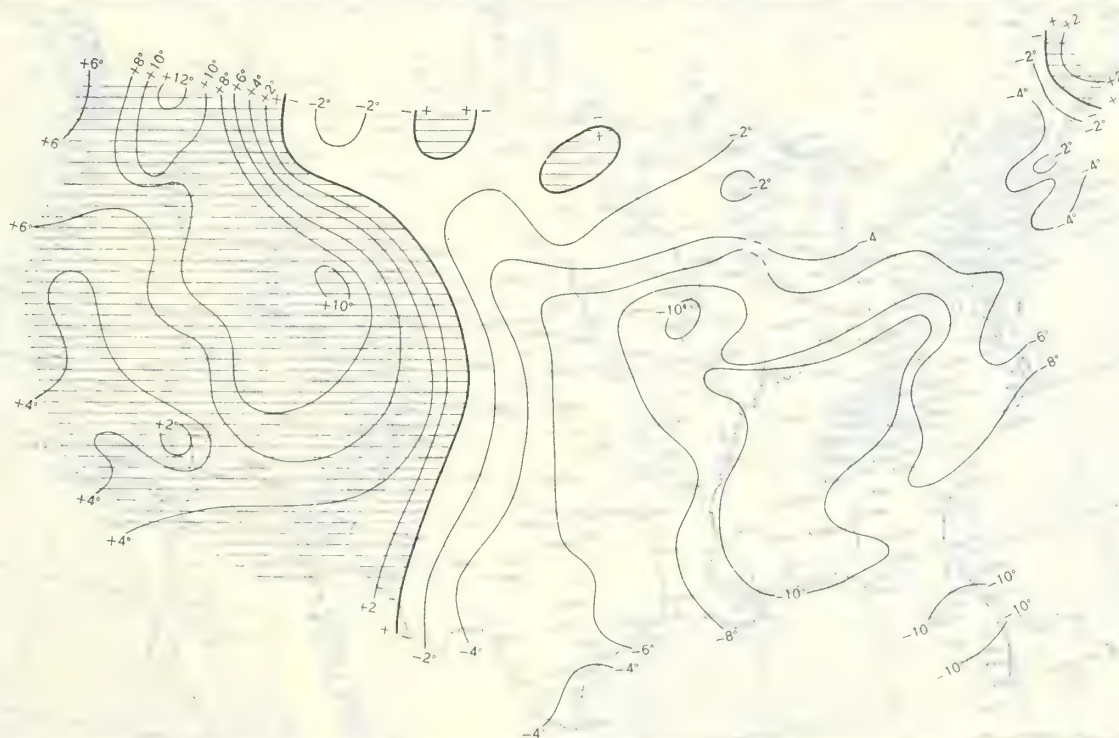
SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

FEBRUARY 1958

	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Saville, N. Y.	Schenectady, N. Y.	Seattle, Wash. (U. of W.)	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Swan Island, W. I.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Silver Hill Obs.)	Aklavik, Mackenzie	Dartmouth, N. S.	Edmonton, Alberta	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Toronto, Ontario	Winnipeg, Manitoba
1958																								
Feb. 5-----	168	278	255	193	254	238	58	96	164	34	95	---	473	267	(586)	118	32	128	136	120	203	285	160	176
Feb. 6-----	257	455	182	130	202	270	103	101	325	---	76	611	338	420	(576)	227	30	180	153	105	231	(277)	107	236
Feb. 7-----	273	460	130	225	38	86	---	72	445	54	39	467	411	374	579	31	37	263	150	177	233	180	175	209
Feb. 8-----	266	452	264	301	275	163	72	79	462	70	328	(649)	543	201	(604)	332	21	14	121	191	82	149	302	204
Feb. 9-----	296	47	279	285	280	149	51	51	165	91	292	---	522	388	593	375	41	223	153	96	145	148	283	252
Feb. 10-----	284	69	330	213	325	272	160	266	71	83	233	627	287	334	615	376	39	288	88	191	238	271	219	255
Feb. 11-----	274	97	236	327	338	272	71	83	426	228	409	517	121	448	611	379	44	297	123	156	208	193	252	198
Average-----	260	265	237	239	244	207	86	116	294	93	210	(574)	385	348	(595)	263	35	199	132	148	191	(215)	214	218
Feb. 12-----	242	237	72	324	141	231	44	39	363	54	357	---	545	470	605	344	46	299	92	232	192	174	209	252
Feb. 13-----	272	497	360	311	278	295	154	152	495	129	220	606	446	328	(608)	324	52	40	138	210	205	170	296	203
Feb. 14-----	199	453	320	268	397	318	73	80	38	109	180	543	480	470	599	293	52	126	219	233	268	319	231	258
Feb. 15-----	316	513	345	324	268	270	121	115	372	45	93	505	310	471	(554)	71	37	320	222	253	279	315	176	274
Feb. 16-----	325	502	363	361	96	85	147	180	478	145	241	393	492	474	394	384	57	127	126	258	149	117	200	283
Feb. 17-----	322	81	295	300	276	204	56	---	328	98	191	---	415	479	(554)	318	61	159	141	95	173	262	108	271
Feb. 18-----	320	74	91	312	467	265	66	66	402	212	283	507	564	484	(452)	405	65	206	106	(112)	105	185	192	240
Average-----	285	337	264	314	275	238	94	105	354	113	224	511	464	454	(538)	306	53	183	149	(199)	196	220	202	254
Feb. 19-----	328	79	333	362	456	211	138	129	180	230	206	447	442	318	(607)	362	68	252	141	269	205	194	157	277
Feb. 20-----	105	72	374	299	460	353	145	171	238	167	428	685	570	133	(625)	423	69	306	194	75	242	326	358	89
Feb. 21-----	168	50	380	(124)	417	248	104	102	294	258	319	613	548	431	623	443	40	193	234	167	215	86	113	221
Feb. 22-----	330	79	157	(251)	184	182	51	48	244	173	70	---	522	413	342	139	34	84	234	279	227	327	323	248
Feb. 23-----	344	228	402	181	168	172	193	225	169	332	(708)	385	448	440	426	426	73	348	229	186	243	101	142	165
Feb. 24-----	323	430	274	96	379	198	112	121	208	54	358	701	500	496	564	423	52	333	162	154	290	167	148	156
Feb. 25-----	340	177	---	342	359	291	200	173	343	230	386	---	217	314	625	425	98	43	102	276	247	327	334	233
Average-----	277	159	320	(237)	362	236	132	134	262	183	300	(631)	455	365	(546)	377	62	223	185	201	238	218	225	199
Feb. 26-----	243	518	439	278	350	315	246	262	104	287	207	---	105	354	631	124	75	274	123	196	303	288	257	60
Feb. 27-----	136	585	---	191	34	119	221	254	531	255	50	---	329	542	(632)	60	101	307	228	(156)	192	141	31	168
Feb. 28-----	167	481	447	145	67	99	223	320	547	332	61	---	553	531	(637)	220	108	145	287	262	193	90	46	115
Mar. 1-----	169	107	369	170	196	49	362	359	231	380	43	---	315	363	620	182	114	61	282	(244)	237	167	99	298
Mar. 2-----	267	538	385	218	310	135	101	171	377	158	125	720	59	427	657	259	90	149	261	182	207	166	149	314
Mar. 3-----	331	242	277	281	80	105	381	373	519	373	106	---	159	260	601	345	57	202	205	148	169	86	121	221
Mar. 4-----	271	164	473	179	183	188	173	183	422	173	235	---	333	314	527	---	89	157	226	281	210	261	255	221
Average-----	226	377	398	209	174	144	244	260	390	280	118	---	265	399	(615)	198	91	185	230	(210)	216	171	137	200

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, February 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), February 1958.

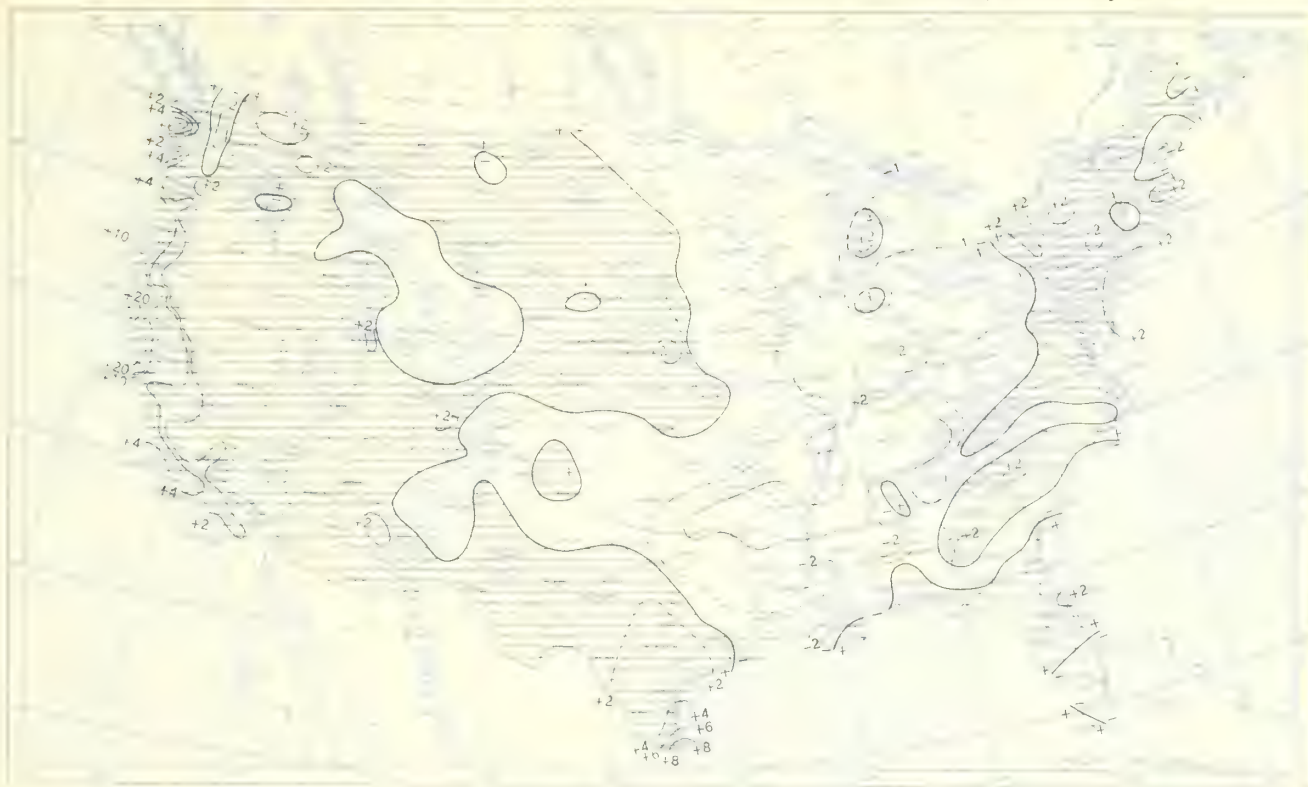
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), February 1958.



Chart III. A. Departure of Precipitation from Normal (Inches), February 1958.



B. Percentage of Normal Precipitation, February 1958.



Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), February 1958.

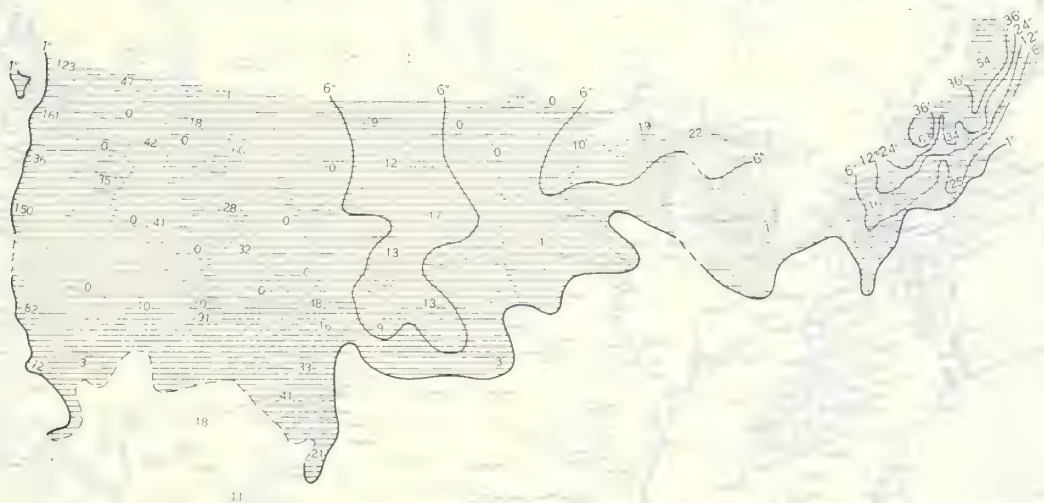


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, February 1958.



B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., February 24, 1958.

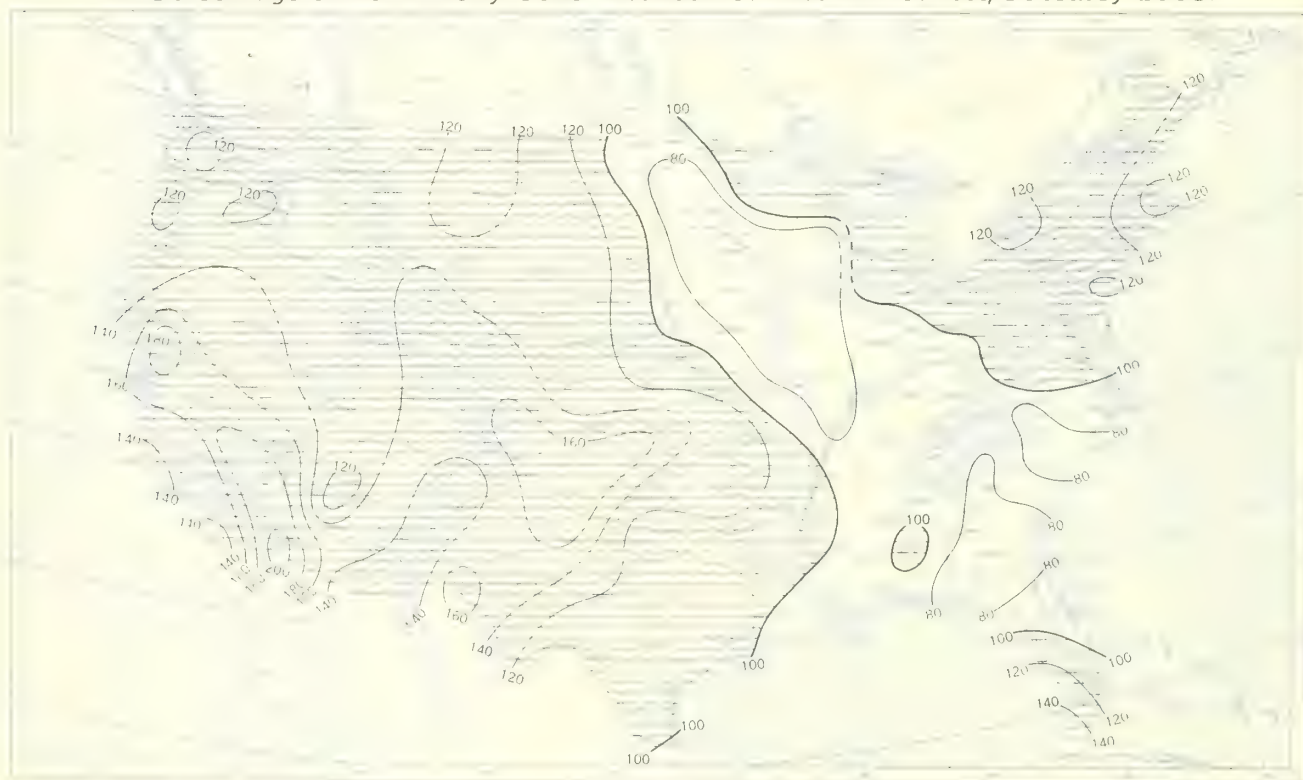


A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
 B. Shows depth currently on ground at 7:00 a. m. E. S. T., of the Monday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, February 1958.



B. Percentage of Normal Sky Cover Between Sunrise and Sunset, February 1958.



A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, February 1958.



B. Percentage of Normal Sunshine, February 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, February 1958. Inset: Percentage of Mean Daily Solar Radiation, February 1958. (Mean based on period 1951-55.)

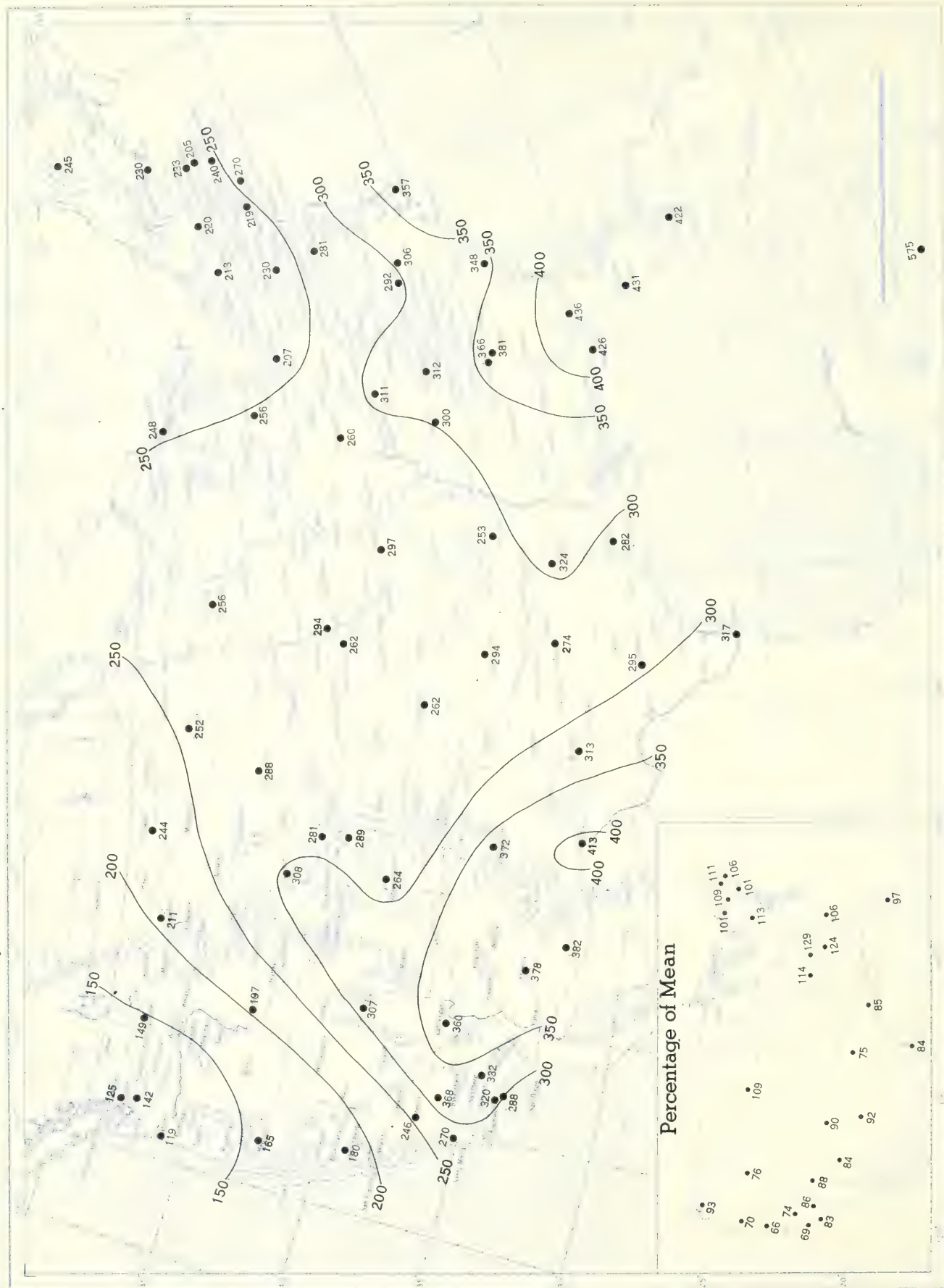


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley (1 langley = 1 gm. cal. cm.⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, February 1958.



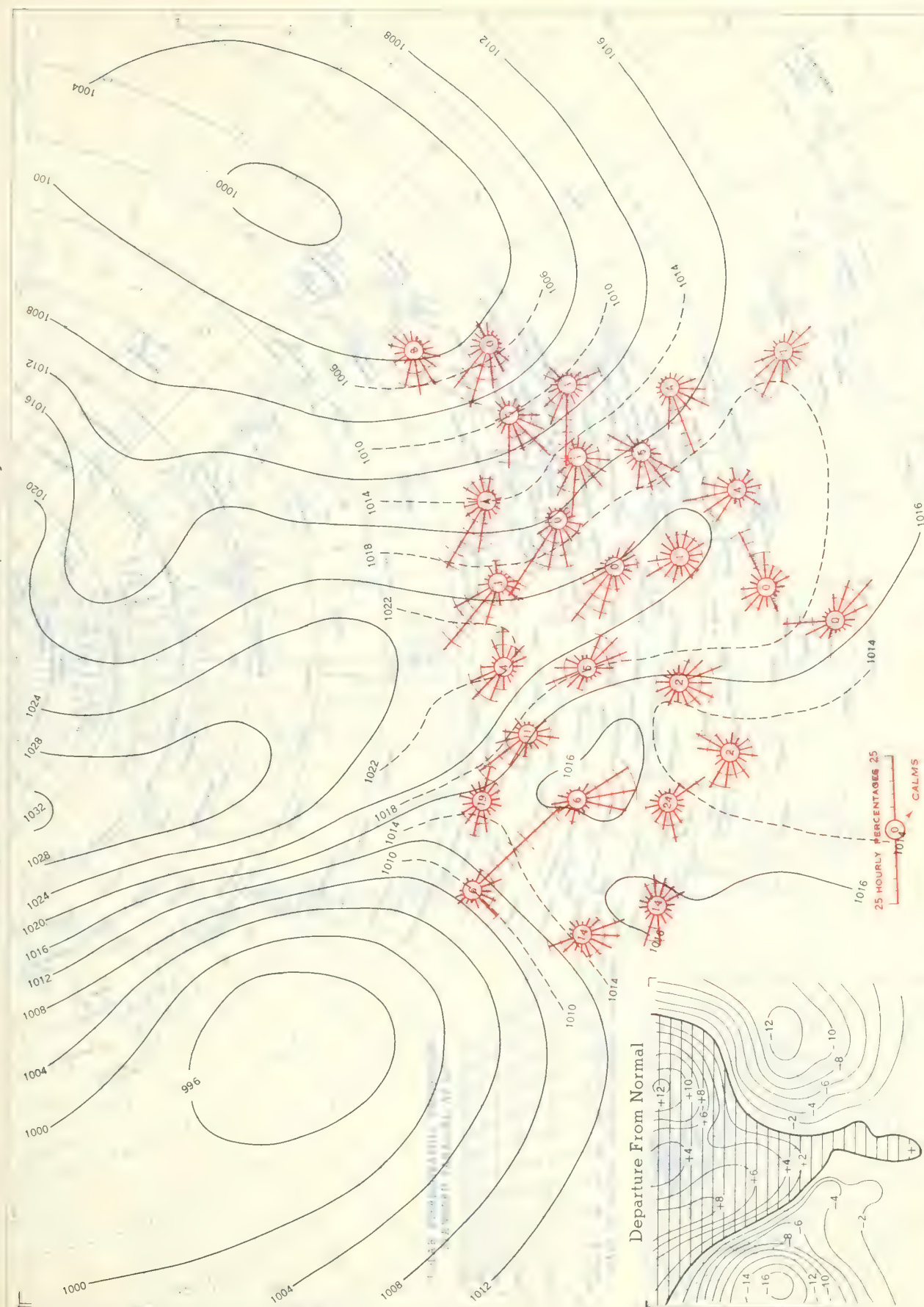
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, February 1958.



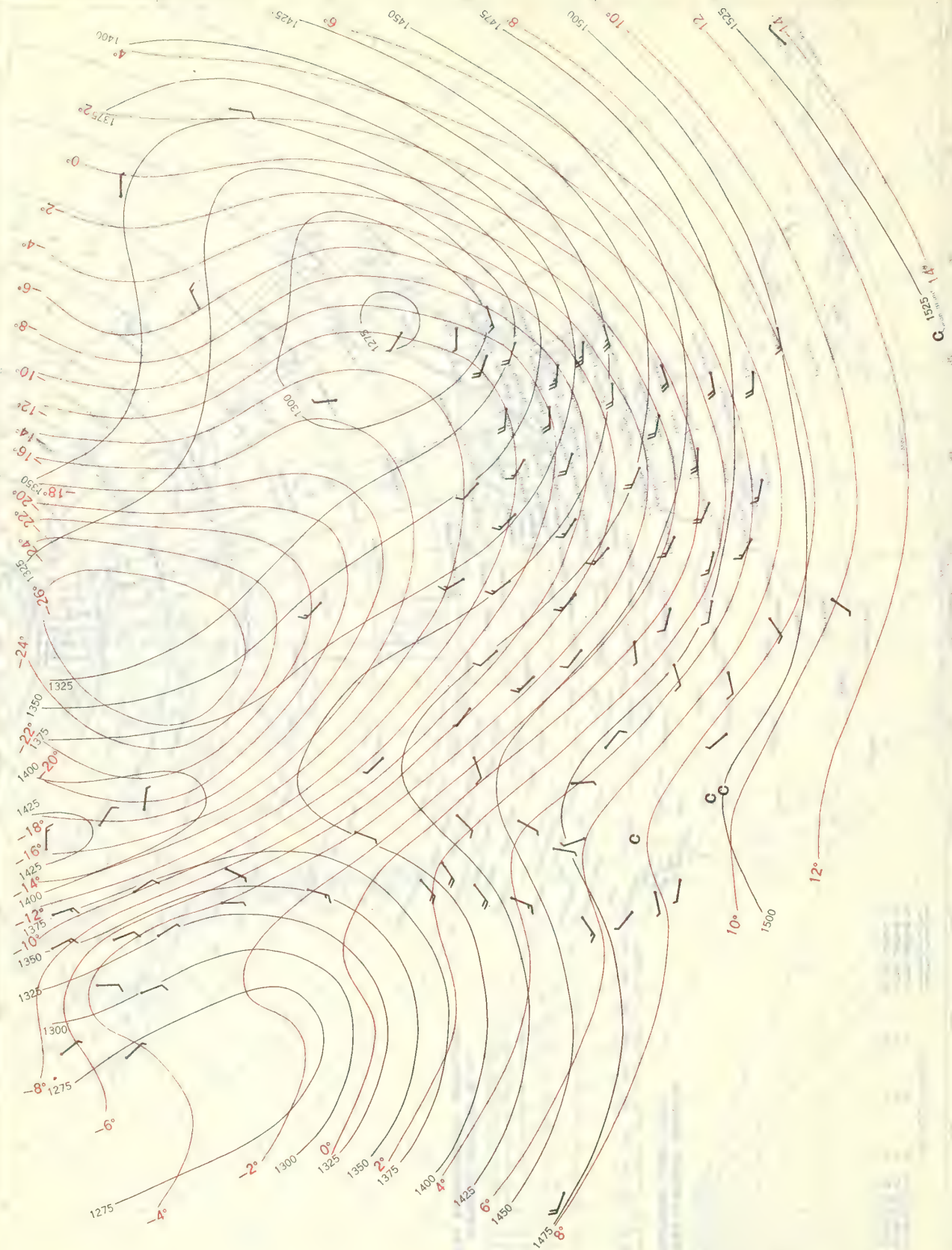
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart 411. Average Sea Level Pressure (mb.) and Climate Windroses, February 1958. Inset: Departure of
Average Pressure (mb.) from Normal, February 1958.



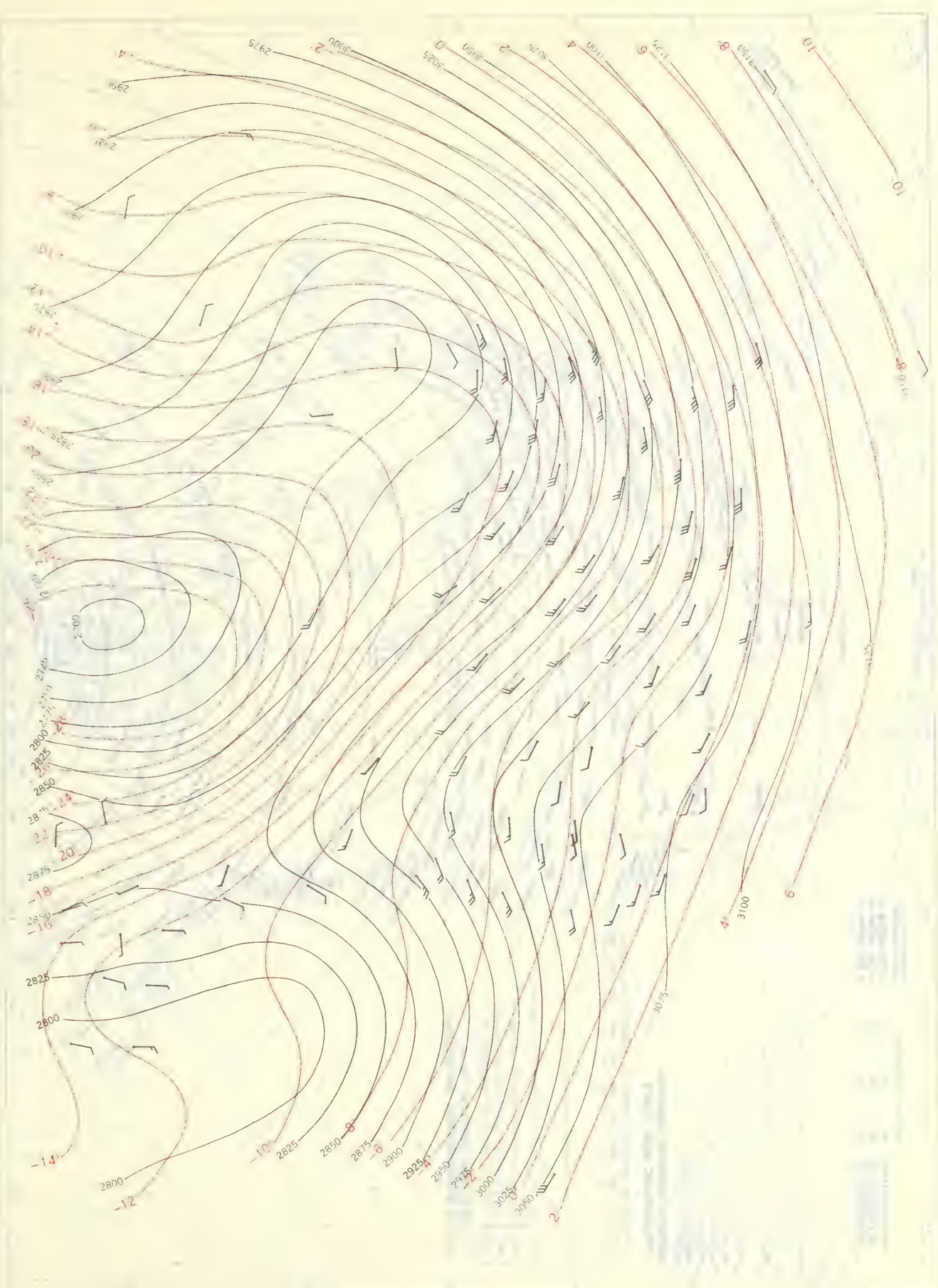
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, February 1958. Average Height and Temperature, and Resultant Winds.

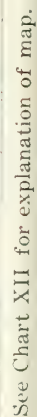


Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, February 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.



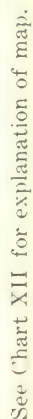
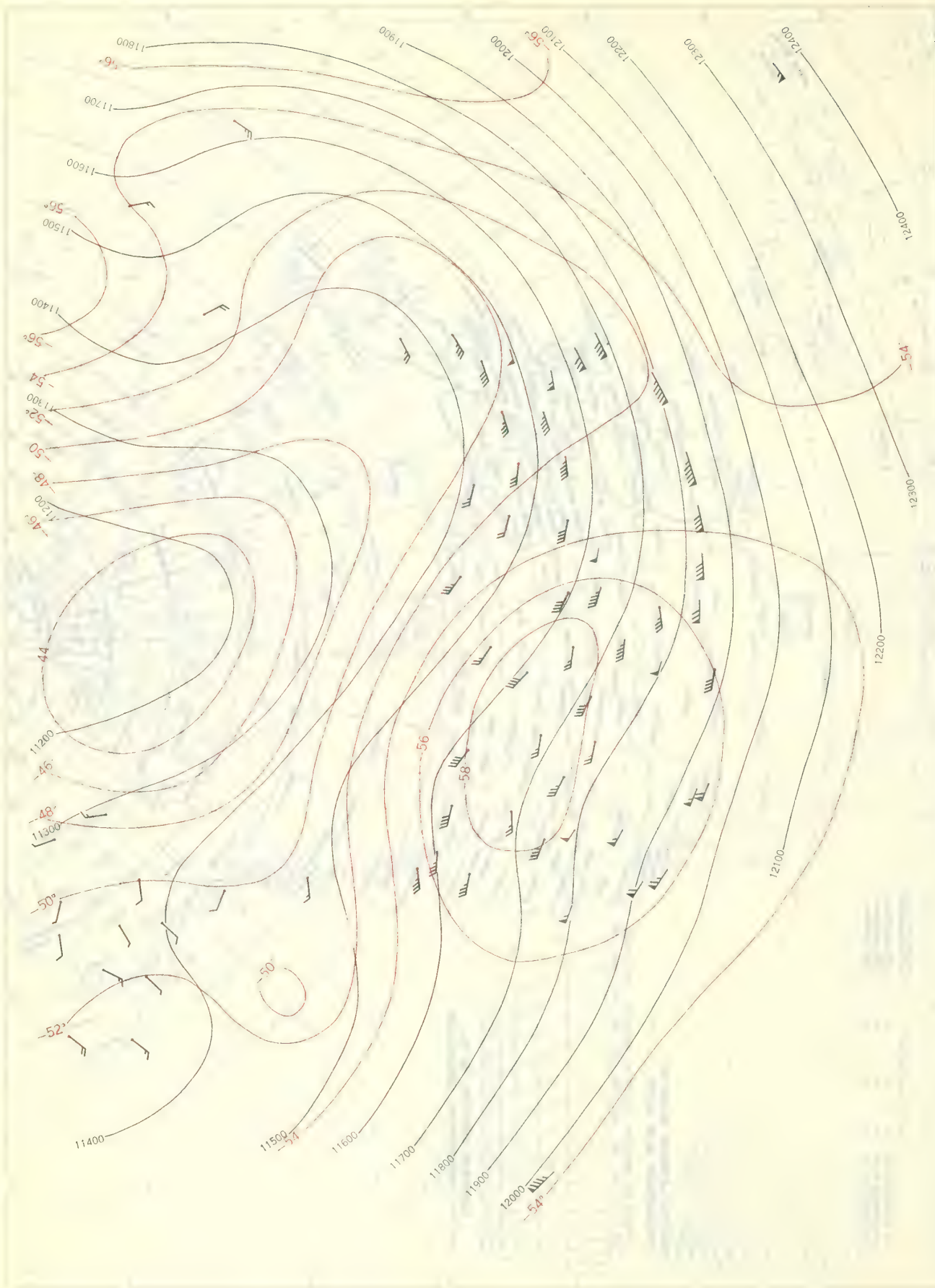
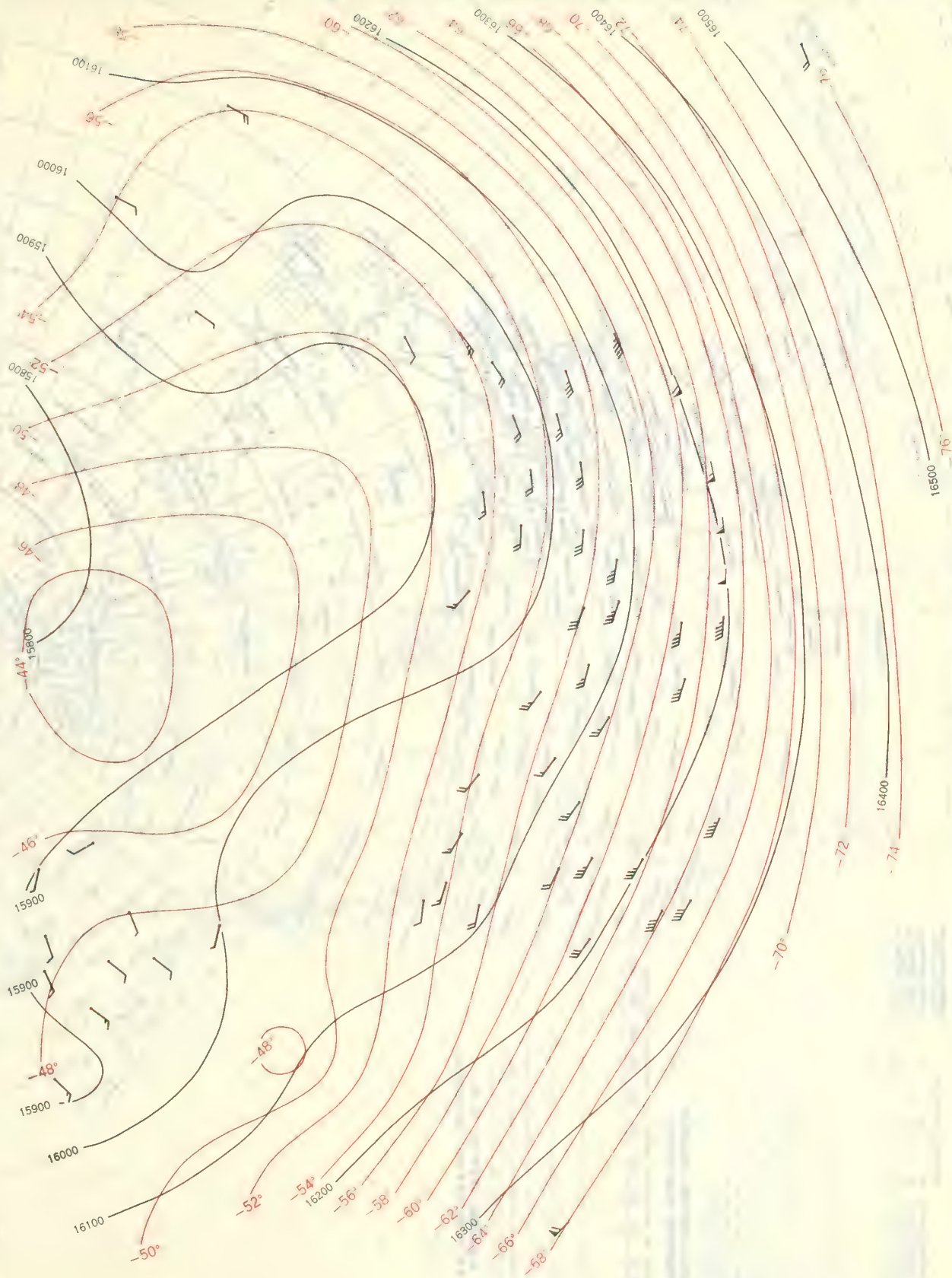


Chart XVI. 200-mb. Surface, 1200 GMT, February 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, February 1958. Average Height and Temperature, and Resultant Winds.



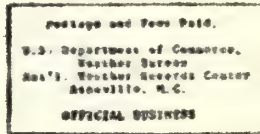
See Chart XII for explanation of map.



U. S. DEPARTMENT OF COMMERCE
SINCLAIR WEEKS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY



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MARCH 1958
Volume 9 No. 3



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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 3

MARCH 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

Blustery weather, typical of March, was conspicuous by its absence in most of the country for the second consecutive year. Severe local storms were relatively few and limited mostly to coastal areas. Average monthly wind speeds were less than usual, and the lowest of record at some northern stations. Cloudy skies and lack of sunshine characterized the weather over much of the area from the central and lower Rockies to the Atlantic coast. Sheridan, Wyo., Amarillo, Tex., St. Louis, Mo., Cleveland, Ohio, Knoxville, Tenn., and Boston, Mass., were only a few of the many stations in this area recording their least sunshine for any March on record. The month was dry from the Great Lakes region through the northern Great Plains, but precipitation was normal to much above elsewhere, with unusually heavy snowfall from the central Great Plains through the Northeast. The month was relatively mild only near the Canadian Border, being considerably cooler than usual elsewhere, but without any unusual extremes or damaging freezes. No significant flooding occurred during the month.

TEMPERATURE.--Temperatures averaged above normal in most sections along the Canadian Border and average monthly departures ranged up to 8° in portions of Minnesota, Michigan, and Maine. At Caribou, Maine, the temperature remained above normal every day of the month.

Elsewhere the month was colder than usual as ridges of cold Canadian air penetrated the country almost continuously, and overcast skies east of the Rockies greatly reduced the normal rise of daytime temperatures. Relative to normal the month was coldest over a persistent snow cover in the central Great Plains where temperatures averaged as much as 12° below normal for the month. For North Platte, Nebr., the average daily maximum, 45.0°, was by far the lowest on record. Goodland, Kans., had its coldest March with an average of 25.5°, as did Amarillo, Tex., with an average of 37.0°. For the first time on record during March the temperature failed to reach 72.0° anywhere in the State of Kansas.

Temperatures averaged 6° or more below normal from the central and lower Great Plains to the Atlantic coast, except in Florida and the immediate Gulf areas where departures generally ranged from -2° to -4°. At Shreveport, La., the average maximum temperature for March, 61.2°, was the lowest on record, and this was the first March during which the temperature failed to reach 80° anytime during the month. Hatteras, N. C., had its coldest March since 1915.

Extreme temperatures for the month ranged from -28° at Fraser, Colo., on the 4th to 92° at Rio Grande, Tex., on the 24th.

PRECIPITATION.--March was the third consecutive extremely dry month from the Great Lakes through the northern Great Plains. The following stations reported their driest March on record: Fargo, N. Dak., 0.03 inch; East Lansing, Mich., 0.43; Rochester, N. Y., 0.47; and Peoria, Ill., 0.39 inch. This was the driest March in 102 years at

Peoria, Ill., and the driest at Rochester, N. Y., during a record dating back to 1830. March totals in this area were less than 0.50 inch which were less than 50 percent of normal. Detroit, Mich., Green Bay, Wis., and Minneapolis, Minn., all reported their driest January-March period on record. Many sections reported dry soil, and a high fire hazard existed in Minnesota and Wisconsin. Despite the dry weather, Bismarck, N. Dak., recorded the least sunshine for any March on record, and Dubuque, Iowa, had 26 consecutive days with precipitation even though the total for the month was the least since 1910.

In most of the remainder of the country, precipitation was about normal to well above. Monthly totals were more than twice normal in many sections along the Atlantic coast, in a belt extending from the Ozark region in Missouri and Arkansas southwestward over New Mexico, Arizona, and parts of California. Accumulations set new March records at the following stations: Blue Canyon, Calif., 18.16 inches; Fresno, Calif., 5.79; Albuquerque, N. M., 1.71; and Atlantic City, N. J., 7.57 inches. At Fort Myers, Fla., 10.51 inches was the greatest March total since 11.77 inches was recorded there in 1852. Several stations in Kansas also reported their wettest March on record. As precipitation was generally well distributed through the month, no significant flooding occurred, but it kept soils in much of the South and East too wet to work.

SNOWFALL.--In the central Great Plains snowfalls were both frequent and heavy; and owing to persistent cold, cloudy weather, snow covered the ground all month in some sections. At North Platte, Nebr., this was the first March on record during which the snow cover persisted throughout the month. In western Kansas where monthly totals generally ranged from 10 to 40 inches, monthly totals at Atwood (32 inches), Quinter (37 inches), Healy (42 inches), Wakeeney (45 inches), Alton (26 inches), and Smith Center (22 inches) set new records for any month; and totals of 21, 25, and 31 inches at Sharon Springs, Oakley and Russell, respectively, set new March records for those stations. Other stations west of the Appalachians reporting record March totals included Ely, Nev., (25 inches), Winslow, Ariz., (6.2 inches), Albuquerque, N. M., and El Paso, Tex., (7 inches), and Springfield, Mo., (15 inches).

The heaviest snowfalls in the East occurred as storms moved up the coast on the 13th to the 16th and 19th to the 22d. During the first storm a foot of new snow was measured at several points in eastern New York State and as much as 2 feet in the central Catskills. In southern New England, gale winds and heavy snow, ranging up to 20 inches in northwestern Connecticut, were responsible for considerable damage to utilities.

The second storm, the worst of the month, produced heavy snow from northern Virginia through New England, with falls ranging from 1 to 3 feet in most of the area. During this storm as much as 30 inches were measured in the vicinity of

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

MARCH 1958

Baltimore, Md., and Trenton, N. J., measured 17.7 inches, the greatest fall there from a single storm since February 12-13, 1899, when 22 inches fell. Up to 35 inches fell in northwestern New Jersey, and up to 40 inches in interior sections of Pennsylvania. This storm was described as the worst in 40 years in Pennsylvania, and the worst of the season in many other sections. Wilmington, Del., recorded 20.3 inches of snow for the month for a new March record.

DESTRUCTIVE STORMS.--By far the most damaging storm of the month was the northeastern wind- and snowstorm from the 19th through the 22d. In the Philadelphia area alone total losses were estimated at more than \$7 million, about \$5 million being sustained by power and telephone companies, and damage was believed to be greater than that caused by hurricane Hazel in October 1954. In New Jersey utilities alone sustained damage exceeding \$2 million according to estimates.

Unprecedented tornado activity in California in the course of the month caused some damage. On the 18th a small tornado caused some damage near West Palm Beach, Fla.

HEAVY RAINS IN HAWAII.--Reports from Hawaii state that on March 5 and 6 rainfall of unprece-

dented intensity fell on the island of Oahu. All stations on the island reported totals exceeding 5 inches and most of them over 10 inches. In downtown Honolulu 17.41 inches fell in 24 hours, a new record there. Even greater totals were measured in the southeastern portion of the island where Lunalilo Home recorded 24 inches for the storm. A southerly flow of air into a narrow zone of convergence centered over Oahu was responsible for the heavy rains. A man lost from a sampan was the only casualty. Damages, almost entirely due to flooding as wind speeds during the storm were light, consisted mostly of washed-out roads and drainage ditches, debris-covered lawns, submerged cars, and utility losses, and were estimated at a few hundred thousand dollars. Additional losses to agriculture amounted to only a few thousand dollars.

RECORD HEAT IN SAN JUAN, PORTO RICO.--During March 1958 downtown San Juan sweltered through its hottest March and hottest day since the United States Weather Bureau began taking records there late in 1898. The temperature averaged 78.9° for the month, and reached an all-time high of 96° on the 28th.

CONDENSED CLIMATOLOGICAL SUMMARY

MARCH 1958

Section	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least	
		°F			°F			In.		In.	
Alabama	Gilbertown	79	7	Valley Head 3S	20	22	Hayneville	11.69	Fort Payne	2.16	
Arizona	2 Stations	85	21+	Maverick	-14	10	Junipine	6.96	Yuma Test Station	.28	
Arkansas	Crossett 7S	79	7	Gravette	16	3	Heber Springs 3NE	8.68	Taylor	3.18	
California	2 Stations	85	19	White Mountain 1	-16	2	Cisco RS	22.26	Coyote Wells	.18	
Colorado	do	73	31	Fraser	-28	4	Wolf CR Pass 4W	7.45	Rangely	.15	
Connecticut	4 Stations	58	30+	Coventry	14	29	Groton	6.29	Natchaug Ranger Sta.	1.80	
Delaware	2 Stations	59	11+	3 Stations	23	24+	Selbyville	9.12	Dover	2.43	
Florida	Alexander Springs	89	31+	Glen St. Mary Nurseries	29	22	Devils Garden Tower	11.07	Ft. Lauderdale Bahia Mar	2.21	
Georgia	Camp Stewart	82	13	Blairsville Exp. Sta.	15	22	Stillmore	8.51	Antioch	2.74	
Idaho	Grandview	68	29	Obsidian 2NNW	-22	11	Island Park Dam	3.64	Carey 2S	.17	
Illinois	3 Stations	65	31	Aledo 5NNE	17	22	Cairo WB City	6.91	Morris 3NNE	.02	
Indiana	Evansville	62	31	Seymour 2N	11	14	New Harmony	4.46	Goshen CAA AP	.19	
Iowa	Bloomfield 2N	67	31	Fayette	6	6	Shenandoah	1.49	Augusta	.05	
Kansas	Elkhart	71	31	Oberlin	-5	18	Longton	6.48	Morrill	.84	
Kentucky	Pikeville	65	2	Mount Vernon	17	22	Hickman 1E	7.83	Grant Dam 3S	1.49	
Louisiana	Leesville	85	7	Belah Fire Tower	26	20	Pearl River	11.68	Lake Arthur 10SW	1.68	
Maine	Woodland	59	12	Jackman	-3	19	Long Falls Dam	4.59	Fort Fairfield	1.42	
Maryland	3 Stations	62	30+	Oakland 1SE	13	13	Ocean City	8.62	Savage River Dam	2.11	
Massachusetts	Lowell	61	30	2 Stations	12	9	Princeton	6.47	Ware 2	1.68	
Michigan	Hart	64	31	Kenton U.S. Forest	-7	10	Stephenson 5W	1.75	Ludington 4SE	T	
Minnesota	4 Stations	62	31	Itasca State Park Sch	-1	21	Duluth	1.10	Ada	.07	
Mississippi	3 Stations	82	7	Ripley	23	15	Van Cleave	13.07	Ashland	3.16	
Missouri	Anderson 1SW	68	7	Greenville 4NNW	10	18	Bernie	9.67	Edina	.29	
Montana	2 Stations	70	30+	2 Stations	-20	17+	Lakeview	3.40	Biddle	.00	
Nebraska	Chadron CAA AP	68	31	Oshkosh	-11	11	Deweese 4SE	3.88	Hay Springs 12S	.10	
Nevada	Overton	78	20	Wells	-6	9	Adaven	4.53	Sarcobatus	.05	
New Hampshire	Franklin Falls Dam	59	31	2 Stations	5	19+	Mount Washington	8.97	Monroe 5NNE	1.18	
New Jersey	Elizabeth	62	29	High Point Park	12	10	Tuckerton	10.02	Sussex 3N	2.02	
New Mexico	Florida	82	16	Red River	-12	1	Cloudercroft 1	7.31	Tres Piedras	.55	
New York	Poughkeepsie	60	30	Lake Placid Club	4	29	Slide Mountain	7.82	Beaver Falls	.28	
North Carolina	4 Stations	72	8+	Celo 2S	16	5	Manteo	8.51	Waynesville 1E	2.13	
North Dakota	Mandan Ft. Lincoln Pk	68	31	3 Stations	-15	6+	Donnybrook	.60	4 Stations	T	
Ohio	Philo 3SW	63	23	Tom Jenkins Dam	13	8	North Kedova Dam 2S	2.94	Catawba Island 1SW	.28	
Oklahoma	Wister Dam	78	8	2 Stations	7	13	Miami	8.04	Goodwell	1.66	
Oregon	Drain 1NNE	71	26	Seneca	-3	8	Gold Bend RS	12.09	Bend	.22	
Pennsylvania	New Stanton	64	3	2 Stations	5	18	West Grove	8.92	2 Stations	.68	
Rhode Island	2 Stations	58	11	Kingston	18	30	Newport	5.69	Providence WB Airport	3.45	
South Carolina	do	77	3+	2 Stations	21	22+	Hilton Head	7.54	Fort Mill 4NW	2.68	
South Dakota	Milesville 5NE	73	31	Deerfield 5NW	-14	19+	Buffalo Gap	1.80	Columbia 8N	T	
Tennessee	3 Stations	68	6+	Dale Hollow Dam	14	4	Springville	7.88	Odomville	1.51	
Texas	Rio Grande City 2ESE	92	24	Dalhart CAA AP	9	13	Dallas WB AP	7.13	Presidio	.17	
Utah	2 Stations	72	20+	Bryce Canyon CAA AP	-15	10	Alta	6.74	Hanksville CAA AP	.28	
Vermont	Vernon	59	30	Mount Mansfield	1	9	Somerset	4.70	North Danville	.90	
Virginia	Boykins	68	3	Monterey	14	11	Tangier Island	8.05	Rose Hill	2.45	
Washington	Diablo Dam	70	28	2 Stations	5	24	Blue Glacier	12.12	Othello	.52	
West Virginia	Williamson	65	3	Kumbrabow State Forest	3	93	East Rainelle 1SE	6.81	Morgantown CAA Airport	1.00	
Wisconsin	Marinette	61	31	Danbury 1SE	-4	5	Summit Lake R Sta.	1.27	Neillsville 1W	.13	
Wyoming	Torrington Exp Farm	66	30	Lake Yellowstone	-19	11	Esterbrook	3.23	Heart Mountain	.02	
Puerto Rico	Dorado 4W	97	28	Guineo Reservoir	51	8+	Saint Just	9.08	12 Stations	.00	

+ And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

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State and station	Elevation (ground)	Pressure					Temperature										Precipitation										Wind					No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	0.1 inch or more	With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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State and station	Elevation (ground) ft	Pressure		Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal			Date	Lowest	Date	No. of days Max 90° F. or above Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		Direction	Date	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
							°F	°F	°F										°F	°F	°F	°F										In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.

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State and station	Elevation (ground)	Pressure			Temperature										Precipitation					Wind				No. of days (sunrise to sunset)									
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F. or above	No. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	0.1 inch or more	With thunderstorms	Snow, Sleet	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine		
NEW HAMPSHIRE (Cont'd.)	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	In.	In.	In.	p. h.	M.	M.										
Mt. Washington	6262	795.9	-----	21	11	16.1	4.1	30	8	2	7	0	31	--	92	8.97	3.42	2.98	22	0	59.7	28	28.3	E +108	NW	7	2	9	20	7.6	35		
NEW JERSEY																																	
Atlantic City (U)	8	1010.4	-----	45	35	40.3	-1.2	56	11	30	9	0	4	--	--	7.57	4.04	3.13	12	1	2.9	3	19.1	---	69	N	20	7	7	17	6.8	46	
Newark	11	1011.7	1013.0	46	34	40.4	-1.1	59	11	27	9	0	8	29	65	4.31	.53	1.76	11	1	19.5	10	12.5	WNW	*31	WNW	7	3	11	17	7.2	--	
Trenton (U)	56	1005.6	1012.8	46	33	40.2	-1.1	54	30+	29	9	0	5	--	--	5.08	1.88	1.78	10	1	21.5	11	11.3	---	31	NW	7	6	8	17	6.9	50	
NEW MEXICO																																	
Albuquerque	5310	843.6	1010.2	53	32	42.8	-3.2	70	21	22	10+	0	17	27	58	1.71	1.27	.57	10	2	7.3	1	7.6	SE	42	W	28	5	14	12	6.5	63	
Clayton	4969	840.8	1013.2	42	23	32.8	-8.7	70	21	7	13	0	28	--	--	1.81	1.15	.56	9	2	16.0	9	---	---	---	---	---	---	---	---	7.3	--	
Raton	6379	800.2	1011.9	45	23	34.2	-3.9	67	21	7	12	0	31	--	--	1.21	.57	.33	19	0	10.0	3	---	---	---	---	---	---	---	---	7.6	--	
Roswell	3612	889.6	1011.5	57	35	46.3	-4.4	78	21	27	12+	0	12	33	67	1.93	1.40	1.08	12	2	.9	1	12.4	---	49	W	28	4	14	13	6.8	--	
NEW YORK																																	
Albany	277	1009.8	1013.5	43	29	36.0	2.9	58	30	19	9	0	26	28	75	2.45	-1.12	1.42	8	0	15.1	14	9.4	WNW	40	N	12	2	5	24	8.4	40	
Binghamton	1601	953.5	1014.1	35	25	30.2	-9.9	52	29	17	10	0	31	25	83	1.96	-1.03	.56	17	0	29.7	16	9.8	NNW	40	NW	12	2	4	25	8.7	37	
Buffalo	693	987.2	1016.6	40	29	34.3	1.5	55	29	19	9	0	26	27	77	1.36	-1.36	.23	16	0	11.2	4	9.7	NE	33	E	21	4	6	21	7.8	38	
New York (U)	10	1011.2	-----	46	35	40.1	-6.6	57	11	26	9	0	6	--	--	4.96	1.40	1.40	10	1	10.5	6	16.3	---	52	NW	7	4	12	15	7.0	51	
New York	19	1010.9	1012.8	46	36	40.7	2.58	11	28	9	0	3	29	67	4.06	.56	1.34	10	1	18.9	5	16.3	---	NW	49	NW	7	2	13	16	7.3	--	
Rochester	543	996.4	1016.2	39	29	33.6	.6	50	28	20	11	0	26	28	81	.47	-2.49	1.3	8	0	8.8	8	10.7	WSW	28	W	16	4	7	20	7.8	43	
Schenectady	217	-----	-----	43	32	37.4	4.9	56	30	20	9	0	16	--	--	1.93	-.76	1.02	9	0	9.5	9	---	---	---	---	---	---	---	---	5.2	--	
Syracuse	424	993.4	1016.1	40	29	34.3	.1	55	30	19	10	0	29	29	82	1.31	-1.93	.41	16	0	12.5	15	9.7	WNW	33	NW	7	3	5	23	8.4	28	
NORTH CAROLINA																																	
Asheville (U)	2203	933.2	-----	50	36	42.9	-3.9	65	2	27	21	0	10	--	--	3.05	-.52	.66	13	0	1.5	2	9.6	---	31	SE	13	4	5	22	8.0	30	
Cape Hatteras (R)	9	1012.1	1012.9	53	38	45.4	-7.3	60	1	30	13	0	5	38	76	5.21	1.32	1.99	8	0	.0	0	13.3	NNE	34	NNW	27+	6	6	19	7.1	51	
Charlotte	725	985.5	1014.3	56	37	46.8	-4.2	67	1	28	21+	0	5	36	71	2.77	-1.32	.74	12	0	.0	0	9.6	NE	32	N	31	6	6	19	7.4	46	
Greensboro	891	982.5	1015.3	52	34	43.1	-5.1	63	11+	24	5	0	12	32	70	3.03	-.62	1.12	13	0	T	9	9.2	NE	29	NW	14	3	11	17	7.4	51	
Raleigh	433	1000.3	1014.4	54	36	44.6	-5.5	65	11+	25	5	0	10	34	70	2.55	-1.05	1.25	8	0	T	8	8.6	N	*30	NW	16	6	7	18	7.2	48	
Wilmington	30	1012.4	-----	58	41	49.1	-5.6	70	1	32	23+	0	3	--	--	4.98	1.53	1.40	15	0	.0	0	12.2	---	34	N	31	7	8	16	6.7	53	
Winston-Salem	967	978.8	1014.8	52	35	43.6	-4.9	64	11+	29	21+	0	9	31	68	2.84	-.99	.86	14	0	T	12.2	NE	*32	NW	14	3	10	18	7.3	--		
NORTH DAKOTA																																	
Bismarck	1650	958.7	1021.5	36	21	28.5	1.8	67	31	6	20+	0	29	20	73	.31	-.45	.14	7	0	5.1	6	12.4	SE	35	SE	21	3	4	24	8.1	47	
Devils Lake (U)	1471	966.5	-----	36	19	27.6	5.0	57	31	-2	6	0	28	--	--	.68	-.18	-.55	.09	6	0	3.0	2	8.3	SE	24	S	31	2	6	23	8.1	55
Fargo	895	986.8	1022.8	40	22	30.9	5.6	57	31+	10	21	0	28	17	60	.03	-.86	-.01	3	0	1.8	1	13.7	N	42	S	31+	6	5	20	7.1	55	
Williston (U)	1877	950.2	1020.6	32	19	25.5	-1.0	59	30	-7	5	0	24	19	73	.28	-.47	.14	8	0	2.9	9	7.6	SE	30	SE	21	2	4	25	8.8	43	
OHIO																																	
Akron	1210	978.0	1017.1	41	28	34.6	-1.9	57	29	18	8	0	26	29	83	1.04	-2.12	.41	13	0	6.4	1	11.4	N	---	---	---	---	---	---	8.4	--	
Cincinnati Obs.	761	-----	-----	44	32	38.2	-5.1	56	31	27	12	0	20	--	--	1.66	-2.41	1.01	7	---	6.2	5	6.3	---	19	NE	9	0	4	27	9.1	--	
Cincinnati	869	984.0	1016.7	44	32	37.8	-3.9	58	31	23	12	0	21	28	70	1.73	-2.31	.87	10	0	7.7	6	9.1	NE	22	ENE	9	0	4	27	9.1	--	
Cleveland (U)	787	988.2	1017.0	41	30	35.5	-1.3	56	29	24	9	0	22	27	76	1.78	-2.11	.36	11	0	4.6	1	13.3	NNE	29	NE	27+	5	1	25	8.3	28	
Columbus (U)	724	-----	-----	44	33	38.5	-2.6	57	31	26	14+	0	18	--	--	1.39	-1.83	.59	10	---	6.4	4	---	---	---	---	---	---	---	---	---	--	
Columbus	815	986.5	1017.3	44	31	37.7	-2.1	57	31+	24	19+	0	20	30	76	1.50	-1.93	.64	9	0	5.9	5	8.9	NW	26	NW	21	0	6	25	8.7	33	
Dayton	1002	979.7	1017.0	42	30	36.0	-3.8	56	31	22	14	0	22	28	74	1.50	-1.74	.64	10	0	11.5	7	10.0	NNE	27	NW	21	1	8	22	8.6	37	
Sandusky (U)	603	994.1	-----	40	32	35.9	-1.6	49	22	26	9+	0	20	--	--	.74	-2.15	.41	9	0	2.2	2	8.6	---	23	NE	25	6	9	16	7.1	40	
Toledo	676	992.0	-----	43	29	35.9	.1	56	29	23	19	0	28	--	--	.58	-2.28	.21	12	0	3.5	1	9.5	---	28	NE	9	6	1	24	8.1	32	
Youngstown	1178	973.0	1016.9	41	28	34.2	-2.5	58	29	18	9	0	26	28	81	1.34	-2.11	.35	14	0	11.0	2	10.6	NNE	25	NNW	21	4	2	25	8.3	--	
OKLAHOMA																																	
Oklahoma City	1280	971.9	1016.6	49	33	41.0	-8.7	66	21	23	14+	0	14	35	82	3.39	1.30	.93	11	2	6.8	5	13.0	NNW	36	SE	28	4	5	22	8.0	36	
Tulsa	672	991.5	1016.8	49	35	42.3	-7.6																										

CLIMATOLOGICAL DATA

MARCH 1958

State and station	Elevation (ground)	Pressure				Temperature										Precipitation					Wind					No. of days (sunrise to sunset)							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F. or above	No. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		No. of days						
																					Total	Max. depth on ground			Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine	
Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	#	°F.	%	In.	In.	In.	In.	In.	In.	In.	In.	M. p. h.	M. p. h.			0-3	4-7	8-10	0-10	%			
TENNESSEE (Cont'd.)																																	
Oak Ridge	905	981.3	-----	52	37	44.9	-3.2	63	2	25	22	0	6	--	3.66	-2.03	0.78	11	0	T	T	4.2	---	35	---	3	4	3	24	8.1	--		
TEXAS																																	
Abilene	1759	952.9	1014.8	58	37	47.3	-7.8	74	21	26	14	0	11	38	73	1.37	.25	.55	7	5	4.0	3	11.0	N	36	S	28+	7	6	18	6.9	50	
Amarillo	3590	886.2	1014.6	45	29	37.0	-9.1	74	21	17	13	0	22	31	84	2.36	1.32	.90	12	2	8.6	3	11.4	SSE	34	W	28+	1	6	24	8.4	30	
Austin	615	993.2	1015.5	64	45	54.6	-5.7	80	7	33	19	0	0	44	71	2.55	.01	.83	12	3	0	0	10.4	N	28	N	11	7	8	16	6.9	48	
Brownsville	16	1010.5	1013.4	72	56	63.8	-4.2	86	23	41	19	0	0	58	83	.84	-.27	.51	8	0	0	0	12.2	SE	33	SE	22	4	5	22	7.9	38	
Corpus Christi	41	1012.9	1014.1	69	52	60.2	-5.1	84	23	35	19	0	0	52	78	.64	-.99	.13	10	2	0	0	11.3	ESE	32	S	22	3	9	19	7.7	55	
Dallas	487	997.0	1016.0	58	42	49.6	-7.8	74	7	31	14	0	1	41	73	1.13	4.32	3.04	12	9	T	0	11.4	NNE	42	S	22	5	8	18	7.5	41	
Del Rio (U)	957	-----	-----	67	48	57.9	-5.0	79	29+	39	14	0	0	---	1.19	.26	.44	6	1	0	0	---	---	---	---	---	---	---	---	---	---	---	
El Paso	3920	882.2	1010.6	61	41	51.2	-3.3	74	21	28	12	0	2	32	51	2.26	1.98	.82	7	0	7.3	7	12.7	WSW	59	W	8	10	8	13	5.9	76	
Fort Worth	544	994.9	1016.1	57	40	48.7	-7.0	70	28+	31	14	0	2	41	76	4.59	2.82	2.99	12	8	0	0	12.7	NNE	*46	WNW	29	5	7	19	7.3	---	
Galveston (U)	7	-----	-----	63	53	57.9	-3.9	76	7	42	19+	0	0	---	.95	2.15	.30	8	1	0	0	12.8	---	32	N	13	---	---	---	---	---	---	
Galveston	5	1012.5	1014.9	63	52	57.7	-4.1	76	8	44	19+	0	0	50	76	1.31	-1.95	.62	8	2	0	0	13.7	N	---	---	---	4	12	15	6.9	---	
Houston (U)	41	1009.5	-----	67	50	58.3	-4.3	80	29+	36	19	0	0	---	1.40	-1.70	.71	8	1	0	0	10.9	N	30	S	22+	5	8	18	6.7	57		
Houston	50	1011.9	1014.8	67	49	57.8	-3.8	81	23	37	19	0	0	46	69	1.47	-1.31	.52	9	2	0	0	12.0	N	---	---	---	3	10	18	7.2	---	
Laredo	500	998.0	1013.3	72	52	61.7	-6.7	86	23	41	15	0	0	49	66	.20	-.70	.07	8	0	0	0	10.9	SE	*25	SE	6	6	7	18	7.3	---	
Lubbock	3243	900.1	1013.9	51	31	41.4	-8.3	76	21	15	13	0	15	35	82	3.23	2.43	.66	15	4	14.3	6	12.7	NE	*44	WSW	7	2	10	19	7.7	---	
Midland	2854	913.3	1013.3	59	37	48.0	-7.7	78	16	26	13	0	9	36	69	.83	.20	.26	11	0	1.0	T	11.3	ENE	*29	WSW	8	6	5	20	7.2	---	
Port Arthur	16	1013.5	1015.0	67	48	57.9	-2.4	81	7	37	19+	0	0	48	73	1.62	-2.38	.43	8	4	0	0	11.9	N	38	NW	8	6	12	13	6.4	61	
San Angelo	1903	946.2	1014.7	59	39	49.0	-9.2	75	7	28	14	0	6	40	74	1.04	.09	.30	8	1	5	1	11.8	NE	*40	WNW	8	5	5	17	6.6	---	
San Antonio	792	989.2	1014.3	67	45	55.8	-5.6	81	29+	33	19+	0	0	44	68	1.08	-1.04	.43	13	1	T	0	9.9	NNE	30	NE	11	5	6	20	7.3	48	
Victoria	110	1009.5	1014.3	68	49	58.5	-5.4	82	29+	35	19	0	0	48	70	1.25	-1.39	.65	9	1	0	0	11.2	N	*43	WNW	8	6	6	19	7.5	---	
Waco	500	993.9	1015.3	62	42	51.9	-6.5	75	7	30	19	0	2	43	71	.96	-1.98	.34	9	2	T	11.9	NNW	*30	NNW	23	8	4	19	6.9	---		
Wichita Falls	1020	978.3	1016.0	54	35	44.5	-8.5	71	21	24	14	0	12	35	73	2.54	.93	.69	9	3	5.2	5	9.6	N	*24	NNW	23	5	4	22	7.7	---	
UTAH																																	
Milford	5028	838.5	1011.9	47	25	35.8	-3.4	63	20	-2	9	0	23	---	1.15	.09	.26	16	0	10.2	4	---	---	---	---	---	---	5	7	19	7.2	---	
Salt Lake City	4220	862.5	1011.9	49	29	39.2	-1.9	65	20	17	1	0	22	28	66	2.19	.53	.58	14	5	15.7	6	9.1	SSE	31	SE	30	3	8	20	7.8	70	
VERMONT																																	
Burlington	331	999.5	1014.6	39	27	32.7	-3.4	52	30	17	10	0	30	26	78	1.06	-1.13	.32	13	0	12.3	15	8.0	N	27	NW	7	1	6	24	8.6	37	
VIRGINIA																																	
Lynchburg	947	979.3	-----	49	34	41.2	-5.2	62	8	26	5	0	12	---	3.57	.00	.87	12	0	6.3	2	9.3	---	25	W	21	5	8	18	7.4	38		
Norfolk	26	1012.1	1013.5	51	37	43.6	-5.5	65	6	32	13+	0	2	33	71	6.41	3.14	3.18	11	0	T	0	12.5	N	34	NE	9	6	7	18	7.0	49	
Richmond	162	1008.4	1015.0	51	34	42.3	-5.2	63	9	27	5	0	11	32	72	3.81	.39	1.36	12	1	6.3	3	8.9	W	21	NW	21	6	5	20	7.3	32	
Roanoke	1174	972.0	1015.4	49	34	41.3	-5.0	64	8	24	5	0	12	29	78	4.76	1.57	1.40	15	0	14.8	3	9.5	NW	---	---	---	3	6	22	7.7	---	
WASHINGTON																																	
Olympia	190	1004.7	1011.5	53	33	43.4	-.3	61	23+	25	14+	0	15	35	76	2.29	-2.21	.53	18	2	.9	T	6.3	SW	*35	S	7	2	6	23	8.2	---	
Seattle (U)	14	-----	-----	54	41	47.4	-.4	61	21	35	8	0	0	---	1.91	-1.15	.44	18	1	T	0	9.1	---	34	SW	7	5	6	20	7.4	62		
Seattle	14	1010.8	1011.7	---	---	---	---	---	---	---	---	---	---	35	67	---	---	---	---	---	---	---	---	6.6	S	---	---	---	---	---	---	---	---
Seattle-Tacoma	366	997.6	1011.8	52	36	44.0	-.5	59	21	29	11	0	22	36	74	2.26	-1.14	.58	17	1	T	0	11.2	SSW	*35	SSW	7	5	4	22	7.8	---	
Spokane	2357	943.1	1012.7	48	30	38.9	-.8	61	23	22	9	0	22	29	71	.84	-.50	.26	10	1	1.9	2	7.9	ENE	29	W	5	2	9	20	7.6	88	
Stampede Pass(R)	3958	872.7	1012.5	36	26	30.9	-.2	46	26	20	11+	0	29	---	3.45	-7.15	.76	21	0	26.8	103	---	---	---	---	---	---	3	4	24	8.4	---	
Tatoosh (R)	101	1007.8	1010.6	51	42	46.5	1.8	56	21+	37	8	0	0	39	77	4.03	-3.79	.95	17	0	T	0	14.6	ENE	56	S	7	2	22	8.2	42		
Walla Walla (U)	949	976.0	1012.2	54	36	44.8	-2.0	64	23	28	12+	0	9	---	1.49	-.03	.40	10	1	1.9	1	5.4	---	30	W	5	5	7	19	7.0	65		
Yakima	1061	972.9	1012.3	53	28	40.7	-3.0	61	23	20	8	0	25	28	63	.81	.35	.54	8	0	T	T	5.8	NNW	*30	WSW	24+	4	6	21	7.6	---	
WEST VIRGINIA																																	
Charleston	950	979.4	1015.7	46	33	39.3	-5.6	60	2	23	5	0	20	30	71	3.09	-1.07	.71	15	0	9.4	2	6.3	NE	18	WNW	21	0	3	28	9.3	---	
Elkins	1970	-----	-----	41	28	34.7	-4.6	54	28+	20	13+	0	24	29	---	1.95	-1.84	.68	14	0	14.0	11	7.6	NE	*29	WNW	21	2	2	27	8.9	---	
Huntington (U)	549	-----	-----	47	34	40.4	-6.8	59	27+	25	5	0	19	---	1.87	-1.21	.68	13+	4	4	2	---	---	---	---	---	---	---	---	---	---	---	
Parkersburg (U)	615	-----	-----	45	33	39.0	-4.6	57	27+	26	23+	0	16	---	1.83	-1.71	.49	14+	2	3	1	5.9	---	18	NW	21	1	4	26	9.0	14		
WISCONSIN																																	
Green Bay	689	996.3	1020.0	39	24	31.5	-3.0	54	31	16	7	0	31	25	79	.50	-1.26	.22	6	0	5.6	4	9.0	NE	26	NE	9+	11	3	17	6.2	54	
La Crosse	852	994.9	1020.6	42	24	33.4	-1.8	59	31	15	6	0	31	21	62	.30	-1.56	.21	4	0	2.9	1	7.4	W	*21	E	8	8	8	15	6.5	---	
Madison	857	983.4	1019.8	43	25	34.0	-1.5	58	31	16	6	0	31	25	73	.38	-1.45	.16	6	0	5.2	2	8.9	ENE	31	NE	8	6	8	17	7.0	52	
Milwaukee	672	993.9	1019.8	39	28	33.3	-.0	48	31	22	12	0	30	25	75	.46	-1.73	.21	6	0	4.8	2	12.7	NNE	38	N	9	7	7	17	6.8	54	
WYOMING																																	
Casper	5322	832.0	1013.7	39	18	28.4	-4.0	56	30	-2	14	0	28	21	74	2.27	1.14	1.00	15	1	25.9	9	7.8	SW	*28	SSW	31	5	5	21	7.4	---	
Cheyenne	6131	806.0	1015.5	35	16	25.5	-6.3	56	21	-8	13	0	31	18	73	2.08	.86	.80	15	0	17.8	7	11.9	SSE	36	W							

HEATING DEGREE DAYS

(Base 65°F.)

MARCH 1958

State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				KANSAS				NEW YORK				TEXAS (Cont'd.)			
Birmingham	462	3116	2622	Concordia (U)	971	5080	4816	Albany	892	5808	6069	Port Arthur	232	1683	1478
Mobile	256	2134	1565	Dodge City	1027	4808	4561	Binghamton	1072	6419	6459	San Angelo	487	2657	2045
Montgomery	319	2524	2057	Goodland	1214	5628	5534	Buffalo	940	5695	5815	San Antonio	289	1794	1545
ARIZONA				Topeka (U)	851	4742	4499	New York (U)	763	4340	4423	Victoria	223	1439	1112
Flagstaff	1054	5802	6161	Topeka	874	4969	4731	New York	746	4252	4391	Waco	401	2254	1959
Phoenix (U)	219	1284	1430	Wachita	891	4606	4183	Rochester	965	5872	5905	Wichita Falls	630	3219	2869
Phoenix	245	1369	1624	KENTUCKY				Schenectady	851	5473	6180	UTAH			
Prescott	755	3879	3984	Lexington	811	4758	4456	Syracuse	943	5821	5666	Milford	897	5393	5583
Tucson	329	1658	1692	Louisville	754	4421	4055	NORTH CAROLINA				Salt Lake City	794	4879	5099
Winslow	654	3929	4215	Pikeville (U)	661	3948		Asheville (U)	679	4368	3677	VERMONT			
Yuma	106	660	937	LOUISIANA				Cape Hatteras (R)	603	2803	2196	Burlington	994	6479	6805
ARKANSAS				Baton Rouge	247	1394	1547	Charlotte	559	3429	3004	VIRGINIA			
Ft. Smith	614	3391	3037	Lake Charles	203	1632	1503	Greensboro	675	4021	3519	Lynchburg	730	4270	3777
Little Rock	562	3069	2842	New Orleans (U)	186	1534	1156	Raleigh	623	3687	3126	Norfolk	655	3212	3130
Texarkana	449	2615	2278	New Orleans	199	1688	1286	Wilmington	488	2811	2212	Richmond	696	3978	3618
CALIFORNIA				Shreveport	391	2380	2056	Winston-Salem	656	3879	3440	Roanoke	727	4263	3782
Bakersfield	337	1954	1989	MAINE				NORTH DAKOTA				WASHINGTON			
Bishop	707	3767	3725	Caribou	1022	7379	8551	Devils Lake (U)	1150	7910	8659	Olympia	665	3913	4482
Blue Canyon	1019	4840	4523	Greenville (U)	1059	7181		Fargo	1049	7284	8148	Seattle (U)	539	3100	3689
Burbank	318	1210	1549	Portland	889	5823	6477	Grand Forks	1086	7671		Seattle-Tacoma	645	3775	4336
Eureka (U)	528	3005	3543	MARYLAND				Pembina	1103	7695		Spokane	804	5101	5815
Fresno	402	2348	2344	Baltimore (U)	635	3782	3804	Williston (U)	1217	7136	7907	Stampede Pass (R)	1048	6911	7238
Los Angeles (U)	246	799	1235	Baltimore	775	4523	4289	OHIO				Tatoosh Island (R)	565	3768	4432
Los Angeles	211	808	1653	Frederick	844	4932	4380	Akron	936	5738	5381	Walla Walla (U)	619	3736	4301
Mt. Shasta (R)	882	4938	4833	MASSACHUSETTS				Cincinnati (U)	760	4369	4110	Yakima	744	4716	5179
Oakland	410	2116	2550	Blue Hill Obs. (R)	928	5389		Cincinnati	832	4887	4631	WEST VIRGINIA			
Red Bluff	469	2584	2318	Boston	796	4620	4979	Cleveland	907	5261	5206	Charleston	784	4582	3989
Sacramento (U)	410	2295	2314	Nantucket	857	4616	4927	Columbus	841	5080	4960	Elkins	932	5627	5019
Sacramento	435	2448	2490	Pittsfield	982	6325	6563	Dayton	893	5276	4944	Huntington (U)	756	4405	3732
Sandberg (R)	802	3755	3491	MICHIGAN				Sandusky (U)	896	5320	5088	Parkersburg (U)	800	4743	4271
San Diego	221	764	1283	Alpena (U)	1007	6517	6739	Toledo	897	5610	5534	WISCONSIN			
San Francisco (U)	359	2090	2362	Detroit	883	5472	5535	Youngstown	949	5734	5344	Green Bay	1034	6891	7109
San Francisco	393	2139	2666	Detroit (Willow Run)	861	5525	5618	OKLAHOMA				La Crosse	973	6498	6774
San Jose	377	1810	1998	East Lansing (U)	903	5770		Tulsa	696	3671	3367	Madison	955	6429	6484
Santa Maria	421	2067	2277	Escanaba (U)	1041	6798	7216	Astoria	620	3599	3957	Milwaukee	977	6300	6124
COLORADO				Grand Rapids	929	6027	6089	Burns (U)	911	5581	5858	WYOMING			
Alamosa	1060	7333	7317	Marquette (U)	1070	6791	7074	Eugene	613	3606	3961	Casper	1129	6138	6451
Colorado Springs	1037	5212	5317	Muskegon	928	5916	5981	Meacham	986	5999	6317	Cheyenne	1218	6030	6210
Denver	990	4922	5256	S. Ste. Marie	1046	7310	7906	Medford	646	3926	3890	Lander	1098	6468	7057
Grand Junction	761	4830	5226	MINNESOTA				Pendleton	682	4005	4570	Sheridan	1038	5949	6710
Pueblo	913	4694	5023	Duluth (U)	1137	7851	8086	Portland (U)	540	3026	3527	ALASKA			
CONNECTICUT				Duluth	1175	7944	8439	Portland	599	3449	3901	Anchorage	1115	8169	8964
Bridgeport	809	4760	5048	Internat. Falls	1127	8409	9158	Roseburg	598	3443		Annette	753	4913	5607
Hartford	848	5351	5379	Minneapolis	980	6560	6944	Salem	614	3578	3826	Barrow	2391	16983	15673
New Haven	807	4864	5146	Rochester	1053	6771	7105	Sexton Summit (R)	901	4996	4876	Barter Island	2450	16169	
DELAWARE				St. Cloud	1089	7274	7793	PENNSYLVANIA				Bethel	1235	9955	10587
Wilmington	800	4710	4398	MISSISSIPPI				Allentown	849	5140	5196	Cold Bay	946	7052	
DIST. OF COLUMBIA				Jackson	429	2733	2121	Harrisburg	815	4851	4693	Cordova	999	8969	7601
Washington (U)	726	4146	3864	Meridian	379	2718	2239	Philadelphia (U)	724	4171	4061	Fairbanks	1514	11455	12336
Washington	723	4122	3923	Vicksburg (U)	408	2469	1929	Philadelphia	770	4512	4360	Juneau	988	6538	7223
FLORIDA				MISSOURI				Pittsburgh (U)	818	4808	4496	King Salmon	1095	8410	
Apalachicola (U)	171	1676	1274	Columbia	859	4902	4638	Pittsburgh	888	5385	5188	Kotzebue	1699	12190	12867
Daytona Beach	129	1257	857	Kansas City	828	4866	4477	Reading (U)	779	4589	4515	McGrath	1406	11441	12261
Fort Myers	60	756	405	St. Joseph	863	5236	4869	Scranton	946	5710	5300	St. Paul	1064	8150	8163
Jacksonville	184	1639	1220	St. Louis (U)	803	4485	4098	Williamsport	847	5264	5215	Yakutat	967	6441	7361
Key West (U)	15	203	77	St. Louis	828	4693	4290	RHODE ISLAND							
Miami (U)	30	426	173	Springfield	866	4532	4264	Block Island	830	4467	4809				
Miami	28	435	178	MONTANA				Providence	816	4872	5239				
Miami Beach	13	272	123	Billings	960	5552	6119	SOUTH CAROLINA							
Orlando	92	1074	650	Glasgow	1153	6877	7668	Charleston (U)	359	2253	1726				
Pensacola (U)	217	1894	1390	Great Falls	1138	5959	6409	Charleston	387	2482	1910				
Tallahassee	192	1831	1481	Havre (U)	1227	6554	7178	Columbia	463	2893	2352				
Tampa	77	1015	674	Helena	1073	6355	7000	Florence	451	2785	2424				
West Palm Beach	37	516	248	Kalispell	964	6339	6810	Greenville	563	3445	2867				
GEORGIA				Miles City	1015	6026	6889	Spartanburg	562	3485	2866				
Athens	515	3285	2657	Missoula	889	5826	6723	SOUTH DAKOTA							
Atlanta	466	3166	2873	NEBRASKA				Buron	1112	6564	6985				
Augusta	414	2812	2076	Grand Island	1109	5812	5654	Pierre	1134	6403					
Columbus	363	2661	2299	Lincoln (U)	918	5324	5284	Rapid City	1057	5841	6415				
Macon	346	2513	1987	Norfolk	1051	6117	6253	Sioux Falls	1036	6401	6934				
Rome	520	3542	2952	North Platte	1272	6067	5755	TENNESSEE							
Savannah	333	2322	1667	Omaha	904	5579	5564	Bristol	678	4341	3779				
IDAHO				Scottsbluff	1083	5666	5888	Chattanooga	570	3685	3160				
Boise	745	4756	5096	Valentine	1165	6166	6161	Knoxville	586	3773	3344				
Lewiston	731	4196	4785	NEVADA				Memphis	592	3428	2974				
Pocatello	897	5771	5962	Elko	1005	6058	6162	Nashville	643	3891	3284				
ILLINOIS				Ely	1068	6174	6186	TEXAS							
Cairo (U)	682	3930	3527	Las Vegas	394	2444	2333	Abilene	544	2876	2544				

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MARCH 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Central portion	1	Midnight- 9 p.m.				6	4		Snow and wind	Continuation of storm that began February 26. Heaviest snow fell west of Missouri River from Corson County to Gregory County. Although snow depths generally less than 12 inches, strong winds drifted snow in some spots as deep as 12 feet. 5-foot drifts common.
IOWA Entire State	1	Through- out day			1		3	1	Snow	Slippery highways resulted in a large number of traffic accidents. 1 death resulted from over-turning of car.
FLORIDA Ocala, Marion County	1-2	Night and early a.m.							Rain	Nearly 5 inches of rainfall caused local flooding, requiring evacuation of 5 families from their homes.
CALIFORNIA Clearlake, Lake County	3						3		Wind	Wind-blown waves up to 5 feet high damaged a few houses and business establishments on west shore of Clear Lake, where water level high from recent rains. Large community pier in South Lakeport, one of few remaining from previous storms, severely damaged.
RHODE ISLAND Southern half	3-4	P.m. 3d- a.m. 4th							Snow	Coastal storm well offshore yielded 3 to 6 inches of heavy snow in Washington and Kent Counties and 8 inches on Block Island. Power- and telephone lines downed by weight of snow throughout affected area. A few minor accidents on slippery highways.
TEXAS Lufkin (2 miles north of), Angelina County	5	11:20 a.m.		10	0	0	4	1	Tornado and rain	Department of Public Safety 300-foot radio tower knocked down and trees uprooted. Storm moved eastward.
CALIFORNIA Upper San Joaquin Valley and southern portion of State	5-6				0	0	3		Electrical, hail, rain, wind, and snow	Widespread thunderstorms over area. Locally heavy rains flooded a few streets in Bakersfield. Hail fell in Antelope Valley, downtown Los Angeles, and San Diego County. Lightning struck power transformers at La Habra, set house on fire in Bell Gardens in Los Angeles. Heavy snow fell in mountains down to 2,000-foot level. Winds reaching 40 m.p.h., reported in Mojave Desert, and strong winds damaged school property at San Dieguito near Encintas.
HAWAII Island of Oahu	5-6				1		5	4	Rain	Rainfall broke alltime records at many stations. Highest storm total was 24 inches. At Federal Building 17.41 inches in 24 hours. Severe local flooding in southeastern Honolulu especially.
KANSAS Northwestern Counties	5,6,7								Snow	Heavy falls of snow of 5 to 10 inches on these dates over northwest counties added to that received on February 26-28. Much less drifting of this snow than in February. Snow depths on ground reported from 18 to 24 inches by 7th. Many roads blocked and traffic halted. Furnishing supplies and rescue of sick necessitated use of helicopters. Snow remained on ground all month in part of area. Difficulty encountered in caring for livestock although feed supplies ample. As snow melted at close of month, side roads became impassable from mud.
FLORIDA Holt-Galliver- Baker area Okaloosa County	6	1 a.m.			0	0	4		Tornado	Numerous buildings damaged and unroofed. Tornado moved northeastward.
FLORIDA Quincy area, Gadsden County	6	Early a.m.							Wind	Destroyed Drive-In theater screen; several tobacco barns damaged.
ARIZONA Litchfield Park, Mari- copa County	7	10:17 a.m.			0	0			Funnel aloft	Funnel cloud aloft sighted for 3 minutes; moved northwestward.
GEORGIA Leary (north- west of), Cal- houn County	7	4 p.m.	2	200	0	2	3	1	Tornado	Tornado moving eastward demolished several small farm buildings and damaged larger houses. Large trees broken and scattered over area. Storm described by witnesses as "a cloud of black smoke boiling along the ground".
TEXAS Monahans (10 miles north of), Winkler County	7	7:45 p.m.	Short	Narrow	0	0	3	1	Tornado	Hit oil rig and moved trailer off blocks.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MARCH 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Eastern portion	7-8	Afternoon 7th- 9 a.m. 8th			1	5	3		Snow and glaze	Wet snow froze to highways, contributing to automobile collisions.
IOWA Western and northern portions	7-8					4	3	1	Snow	Many traffic accidents blamed on slippery roads and highways.
TEXAS Seymour and Bomarton Baylor County	8	12:10 a.m.	Short	Narrow	0	0	4	1	Tornado	Tornado moving southwestward blew away double garage and damaged windows and roofs.
ALABAMA Winfield, Marion County	8	5 p.m.					4	1	Electrical	TV antenna hit and gas line in same house melted, causing fire.
UTAH Most of State	8	P.m.				Sev- er- al			Snow and wind	Snowstorm blocked several highways temporarily, stalled air traffic for a time, and trapped skiers in northern mountains. Numerous traffic accidents and some injuries reported.
	8									Minor storms also reported at Rhonesboro and Winnsboro, Tex.
VIRGINIA West-central area and northward	9	Late af- ternoon							Snow	Heavy snow began falling in west-central and spread northward. Snow depths ranged from 2 to 6 inches over west-central, increasing to 10 to 15 inches over north. Heaviest snow in 22 years reported in Harrisonburg area. School closings and traffic mishaps reported in these sections. Storm moved northwestward.
UTAH Snow Basin in Ogden Canyon, Weber County	9	P.m.			2				Snow avalanches	Series of at least 6 avalanches moving down slopes of Mt. Ogden caused death of 2 skiers.
CALIFORNIA Southern portion	10-11						3	1	Electrical and snow	Storm moved southward along northern coast on 10th, became large and complex over southern plateau and southeast on 11th and 12th. Lightn- ing knocked down several powerlines in Los Angeles area, and snow temporarily closed roads in Tehachapi Mountains.
ARIZONA Phoenix (5 miles south of), Maricopa County	11	2:30 p.m.	3/4	30	0	0	3	1	Tornado (sus- pected)	Most damage to hatchery in South Phoenix. Storm moved eastward.
SOUTH DAKOTA Stickney, Aurora County	12	Early a.m.			1	2	3		Fog	Automobile collision during dense fog.
CALIFORNIA Madera, Madera County	12	11-11:02 a.m.			0	0	2	1	Tornado, hail, and rain	Moved northeastward across Madera golf course, hitting west side of shop. Large black cloud with white funnel about 1,000 feet long moved across fairway, preceded by downpour of hail and then cloudburst of rain. Loud roaring noise heard. Heavy shake roofing ripped from roof of porch, and heavy supporting posts ripped from concrete footings, and moved outward 6 to 10 inches. Trees adjacent to course twisted severely. Heavy bench carried into air and de- molished.
FLORIDA Pompano Beach, Broward County	12	8:30 p.m.				7	4		Wind	Very strong, short-duration winds associated with thunderstorm overturned several house trailers, causing considerable local property damage.
CALIFORNIA Entire State	12						3	1	Electrical, wind, and hail	Unusually widespread thunderstorm activity ac- companied by local wind damage in Dominguez area of Long Beach, lightning damaged several homes and trees at Monrovia, and many hail occurrences. Hail accumulated to depths of 2 inches on ground in Palo Alto.
TEXAS Northern and western portions	12				1		4	1	Snow	Heavy snowfall tied up traffic and delayed trans- portation. Drifts up to 11-1/2 feet deep in Floydada vicinity, Floyd County. 1 man died of heart attack after his car skidded into deep snow near Electra, Wichita County. Several schools closed in Panhandle, heavy snow forced hay and bundle feeding of cattle. Storm moved southeastward.
UTAH Northern portion	12								Wind	Canyon winds with gusts up to about 60 m.p.h., caused slight damage to trees, roofs, and buildings near canyon mouths along western slope of Wasatch Mountains.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MARCH 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
GEORGIA Savannah (30 miles south- southwest of), Liberty or McIntosh County	12									Minor storms also reported at Tucson, Ariz.
	13	11:50 a.m.			0	0	1	1	Funnel aloft	Reported by pilot.
VIRGINIA Virginia Beach, Princess Anne County	13	11 p.m.		200					Wind, elec- trical and rain	Broke windows, unroofed a few buildings, and tore down chimneys and utility poles. Storm moved northwestward.
	13									Minor storms also reported at Kinston, N. C.; and in Northampton County, Va.
PENNSYLVANIA Eastern portion	13-14				1		4	1	Snow	Heavy wet snow which accumulated from several inches to 3 feet caused collapse of several buildings. Some utility lines also snapped from weight of snow. 3 automobile accidents reported due to snow, but only minor damage resulted. Storm moved northeastward.
CONNECTICUT and RHODE ISLAND	14-15	Early a.m. 14th- early a.m. 15th				11			Snow	Intensifying storm, moving from Hatteras to near Nantucket, yielded 3 inches of snow in coastal sections, 5 to 10 inches in central portions of both States, and up to 20 inches in northwestern Connecticut. Highways rendered very hazardous with 11 persons (8 in Connecticut and 3 in Rhode Island) injured among the many skidding accidents. Schools closed on 14th in south- western Connecticut and air traffic suspended at Providence. Power failures, due to heavy snow breaking wires, scattered over both States with greatest number in western Connecticut. Skidding bus narrowly escaped plunge into Hockanum River at East Hartford, Conn.
NEW ENGLAND Northern and central portions	14-15				6	Many	6	1	Snow, wind, and glaze	Coastal storm severe over entire section, except extreme north, most severe in eastern Massachu- setts, southern New Hampshire, and coastal Maine where gale winds, 4 to 12 inches of wet snow, and near freezing temperatures combined to form ice on trees and wires. At Hampton, N. H., ice loading on wires built up 4-1/2 inches in diameter and 1 sample weighed 4-1/2 pounds per linear foot. Trees and wires in many areas damaged more extensively than in many years, exceeding even hurricane damage several years ago. Some utility companies reported that this was one of the most damaging storms in their experience. Power cut off in southern New Hampshire entirely. Many, unable to heat homes without power, found other lodging. About 13,000 phones out in Massachusetts, 10,000 in New Hampshire, 8,000 in Maine, and fewer in Vermont. Farther inland 8 to 20 inches of snow blown into tall drifts, blocking many roads. Drifts up to 10 to 15 feet common in hilly areas and one of 20 feet reported. All forms of transportation hampered. Clearing of roads delayed by abandoned, stalled automobiles. 6 deaths attributed to storm in Massachusetts. Accidents numerous throughout section, with scores injured. Fire and police alarm systems damaged and high winds hampered fighting several major fires.
NEW YORK	14-15				5			1	Snow	Snowstorm of moderate to light intensity. 4 per- sons died in separate automobile accidents caused by poor visibility in snow. Fifth person died from heart attack while shoveling snow.
CALIFORNIA Southern por- tion and San Joaquin Valley	15-16				1	2	5		Rain	Storm moved northeastward into central California on 15th and Nevada on 16th; caused heavy rain, and overtaxed drainage systems causing much local flooding in many areas, primarily Fresno area and southern Los Angeles County where some evacuation necessary. Many rock and mud slides. Boy killed by car plunge into washed-out bridge approach 21 miles west of Mendota, and 2 injured by rock slide into house at Beverly Hills. Numerous weather-contributed traffic accidents.
COLORADO	15-17								Snow, rain, and hail	From 10 to 40 inches of snow fell at higher eleva- tions, closing some passes and leaving others snowpacked and slippery. Many accidents because of road conditions.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MARCH 1958

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CALIFORNIA March Air Force Base, Riverside County	16	12:21- 12:29 p.m.			0	0			Funnel aloft	Weather cloudy. Funnel observed moving north- ward.
	16									Minor storm also reported in Mesa County, Colo.
CALIFORNIA March Air Force Base, Riverside County	17	4:09 p.m. - 4:24 p.m.			0	0			Funnel aloft	Weather cloudy. Funnel observed moving north- ward.
FLORIDA Delray Beach, Palm Beach County	18	11 a.m.	Short	Narrow	0	0			Tornado	Partially destroyed chicken and egg ranch, killing many chickens. Tornado cloud seen.
FLORIDA West Palm Beach, Palm Beach County	18	11:08 a.m.			0	0			Funnel aloft	Reported by pilot.
FLORIDA West Palm Beach, Palm Beach County	18	12:04- 12:15 p.m.			0	0			Funnel aloft	Large funnel cloud, observed by Tower and Weather Bureau personnel about 10 miles northwest of Airport, continued until about 12:15 p.m., and then dissipated. No reports that cloud touched ground received.
VIRGINIA Central, Mountain, and northern portions	19-20	P.m. 19th -a.m. 20th							Snow, wind, and rain	Storm moved up Eastern Seaboard, bringing heavy rains to south and central which turned to sleet and then to snow to north. 10 to 15 inches of snow accumulated in these areas. Storm accompanied by high winds to account for widespread damage, especially over north portion of State where power company claims storm worse than most hurricanes. 150,000 power failures reported. Some school closings re- ported because of roads and/or power failures. Storm moved northwestward.
PENNSYLVANIA Eastern portion	19-20				27		7	1	Snow	Heavy, wet snow caused many utility wires, utility poles, and trees to snap as well as many build- ing roofs to collapse under tremendous weight of snow. Snow ranged in depths from 3 inches to 3 feet and was responsible for all property damage. Deaths resulted mostly from heart at- tacks brought on from overexertion from shovel- ing snow and electrocutions from fallen electric wires. Storm moved northeastward.
MARYLAND Northern and central districts	19-21				8	un- known	7		Snow	Unusually late, heavy snowstorm. Northern and northwestern Baltimore and surrounding counties hit hardest. Thousands left without heat, light, power, or telephone services as heavy, wet snow caused wires to break under stress of heavy snow loads or weight of trees which fell over wires. In some cases, poles collapsed under weight of heavy, wet snow. Itemized loss estimates as follows: Baltimore Gas and Electric Company, \$3,596,000; Chesapeake and Potomac Telephone Company, \$2,000,000; trees and shrubs in Baltimore only, over \$1,000,000; business and payroll losses, over \$4,000,000. Chesapeake and Potomac Telephone Company of Mary- land reported total of 2,000 poles downed during storm as follows: 700 in Harford, northern Baltimore, Carroll, and Frederick Counties; 500 in Caroline, Kent, Queen Annes, and Cecil Counties; 300 in Howard, and southern Baltimore Counties; remainder in Montgomery County and elsewhere.
NEW JERSEY	19-21						6		Snow and wind	Snowfall, averaging 13 inches over State, with heaviest amount 25.2 inches at Layton, Sussex County, amounted to from 2.8 to 8.0 inches along immediate coast. Wet, clinging snow froze to wires, antennas, and similar objects, particu- larly in central and south. Sustained, whipping winds encountered so much resistance from greatly increased diameters of heavily weighted snow- and ice-covered wires and other objects that large-scale destruction occurred. Additional damage caused by collapse of roofs, patios, and awnings under excessive weight of heavy, wet snow. Damaged utility lines left 400,000 customers without electric service and 70,000 telephones out of operation. Greatest losses suffered by telephone and electric utility companies.

See footnotes at end of table.

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					Killed	Injured	Property (exclusive of crops)	Crops		
NEW YORK Southeastern portion, New York City and Long Island	20-21				9			1	Snow and wind	Severe snowstorm with strong winds and tides along coast. 5 persons died in automobile accidents, 3 from heart attacks while shoveling snow, and 1 killed by roof caving in under weight of snow. Damage to wires left 100,000 to 150,000 homes without power. Winds and tides associated with storm did "millions of dollars damage to Fire Island with 20 homes undermined." Snowfall generally 6 to 18 inches, but up to 24 to 30 inches in parts of Catskills.
CONNECTICUT Entire State	20-22	Early a.m. 20th -late a.m. 22d				15			Snow and wind	Third major coastal snowstorm to affect area in 1958 yielded 8 to 14 inches of snow to southwest sections by early 21st and similar amounts to eastern sections by early on 22d. Ridge-field in southwest and Putnam in northeast each reported 14 inches of snow, while north-central areas received 3 to 6 inches. High winds with gusts to 65 m.p.h., added to storm effects. Drifting of roads with 8-foot drifts reported in northeast, breakage of limbs and powerlines, and tides 3 feet above normal, which required alert for possible evacuation of shoreline residents. Power failures widely scattered and generally not serious. Injuries resulted from automobile accidents and elderly persons being blown down by high winds. Schools closed in southwest on 21st, due to bad driving conditions.
RHODE ISLAND Entire State	20-22	Early p.m. 20th - early p.m. 22d			1	4			Snow and wind	Snowfalls of 6 to 12 inches resulted from severe coastal storm which affected Atlantic Seaboard and centered near Narragansett Bay on 21st. High winds with gusts to 71 m.p.h., at Providence and 75 m.p.h., at Block Island and heavy snow caused very extensive power and telephone failures throughout State. Crippling of utility lines termed comparable to that caused by hurricane Carol in 1954. Many schools closed, industry slowed, and thousands greatly inconvenienced by inoperation of electric appliances as normal power not restored until 24th. Downed "live" wires created many hazards and fire damage to 4 dwellings in Coventry blamed on this cause. Fatality resulted to driver as his car skidded into large oil truck. Highway travel hazardous, but reduced somewhat by temperatures favoring steady snowmelt.
NEW ENGLAND Northern and central portions	20-22				4	Many	6	1	Snow, rain, and wind	This second severe coastal storm in week was more severe than first in parts of eastern Massachusetts, but was less damaging elsewhere. Rain or wet snow in coastal areas with 5 to 10 inches of snow inland, except less in parts of extreme west and up to 15 to 20 inches in central Massachusetts and some higher elevations elsewhere. Some drifts up to 15 feet reported in north-central Massachusetts. Again much damage to trees and wires in eastern Massachusetts. Nearly 25,000 phones out in Massachusetts, 5000 in southeastern New Hampshire and a few hundred in Maine. Thousands of homes lost power service, a few of which had barely had service restored after preceding storm. Storm surge tides flooded some coastal highways, eroded beaches, and damaged shore property. Gales reached hurricane speed at times and damaged fishing vessel at sea. Lobster boat wrecked at Marblehead and large scow sunk at Falmouth, Mass. Plate-glass windows broken in many eastern Massachusetts towns. Drive-in movie screen damaged at Canton and home unroofed at Gardner, Mass. 3 deaths in Massachusetts and 1 in New Hampshire blamed on storm and a score or more injured. All forms of transportation delayed in area of heavier snow and even snowplows had difficulty with huge drifts in central Massachusetts. Many towns had no funds for snow removal, due to earlier heavy snows. Schools closed on 21st in heavy snow areas.
CALIFORNIA Entire State	20-24				2	2	6		Rain, wind, electrical, and hail	Storm off Pacific Northwest coast with intense storm front moving across State on 20th and 21st, caused shower activity continuing through 24th. Gale-force winds in north and central damaged property from Eureka to Fresno. \$15,000-fishing boat torn from moorings and sunk at Trinidad, 26-foot boat heavily damaged in Bodega Bay, 110-foot schooner torn from moorings in Richardson Bay and narrowly escaped foundering before rescue by Coast Guard. Structural damage reported at Eureka, San Francisco, Oakland, San Jose, Yuba City, and Fresno. 10,000-square foot section of grandstand roof at Santa Clara County

See footnotes at end of table.

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CALIFORNIA (Cont'd.)										Fairgrounds blown away. Trees and utility poles blown down in many areas. Thunderstorms with accompanying heavy rain and hail widespread following frontal passage. Lightning destroyed steeple tower of church at Petrolia, Humboldt County, and elsewhere struck many powerlines and transformers. Local flooding of streets in Bay area, Sacramento and San Joaquin Valleys, and in southern California. In the San Joaquin Valley, overflowing of Bear and Black Rascal Creeks flooded 5,000 acres of farmland in McSwain area, and about 2,000 acres flooded in La Vina district southwest of Madera from overflowing of Cottonwood Creek. Minor rise of Eel River cut away 75 feet of pasture near Fernbridge, collapsing 80-cow dairy barn into river. Earth slides continued active in many areas, with several additional homes damaged in Bay area and south. Woman injured in El Cerrito when retaining wall collapsed and crushed house trailer, and at Albany woman narrowly escaped death when mudslide crashed into bedroom. At South San Francisco, 7-year old girl drowned in rain-swollen creek, and man drowned when car washed off road into Chickahominy Slough between Woodland and Winters.
OREGON Northern Willamette Valley and Columbia Gorge areas	21	Afternoon	80- 100	*40- 50			4	2	Electrical, rain, and wind	Fairly violent lightning storm accompanied in some areas by relatively heavy rains and high wind moved across northern half of Willamette Valley and up Columbia River as far as The Dalles. A number of trees in both rural and suburban areas struck by lightning. A few homes, some other buildings, and power installations suffered lightning damage. At The Dalles, heavy rains flooded store basements. Approximately \$2,000 damage caused by lightning, \$12,500 by rains, and \$500 by wind. Storm moved northward.
SOUTH DAKOTA Sturgis, Meade County	22	Evening			1		3		Freezing rain	Man thrown from car as it skidded from highway.
OREGON Northwestern portion	23	3:30-6:30 p.m.	50- 75	*30- 40	0	0	4	2	Electrical, wind, and funnel aloft	Violent lightning storm at a number of points in northern Willamette Valley and westward to coast range struck a few homes and other buildings, knocked out Portland TV station, several power transformers and lines, and shattered several trees. High winds particularly in Troutdale to Sandy area blew down large number of trees, snapped off several power and telephone poles, causing not only widespread power and telephone service interruptions but considerable difficulty to late Sunday afternoon traffic as hundreds of cars were held up until "hot" wires, poles, and trees could be cleared off highway. Damage by lightning \$7,000, by wind \$13,000. Storm moved north-northeastward.
WASHINGTON Southwestern portion	23	Afternoon					4		Wind, electrical, and rain	Thunderstorms accompanied by rather strong winds in some localities of southwestern Washington and along the Columbia River caused a number of power failures and a small amount of damage to other property.
CALIFORNIA Chowchilla, Madera County	27	2:48 p.m.			0	0			Funnel aloft	Well-defined funnel cloud about 5 miles east-northeast of Chowchilla, observed from moving train. Funnel close enough (about 300 yards) to observe rotating clouds. Funnel southwest of heavy shower area, heavy black clouds north and east. Visible portion of funnel extending down from cloud ceiling of about 2,500 feet to within about 300 feet of ground. Funnel over grass surface. Observed by Weather Bureau meteorologist.
CALIFORNIA San Diego area, San Diego County	27	3:45-3:57 p.m.		25	0	0			Waterspout	Weather showery, no unusual cloud formations noted. Waterspout moved east-northeastward 3 miles southwest of North Island.
CALIFORNIA Central and southern portions	27-28					2	4		Rain, wind, electrical, and hail	Pacific storm off central California coast on 27th, moved eastward to Nevada on 28th, causing heavy rain along central and southern coast, and locally strong winds in portions of Los Angeles County and Mojave Desert. Several earth slides reported in San Francisco Bay area, Sierra, and Los Angeles area. Slide north of Santa Monica on 27th completely covered 4-lane Pacific Coast Highway for distance of 150 feet, and pushed automobile into ocean, 2 passengers escaping with minor injuries. Many streets

See footnotes at end of table.

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CALIFORNIA (Cont'd.)										flooded in San Fernando Valley, where some schools forced to close. Winds in Los Angeles area downed high tension wires, caused some light structural damage, damaged and forced abandonment of Long Beach Airport control tower, and blew 35-foot fishing boat on rocks off Portuguese Bend, crew of 5 rescued. Widely scattered thunderstorms reported and hail in a few places.
IOWA Lee County	28	10:30 a.m.			0	0	1	1	Dust devil or tornado	Fishermen reported storm moving northeastward carried brush, debris, and water overhead.
TEXAS Brownfield (4-1/2 miles northwest of), Terry County	28	2 p.m.	10	150	0	0	4	1	Tornado	New 4-plane empty hangar smashed and outbuildings destroyed on farm. Tornado moved northeastward.
TEXAS New Home (3 miles northwest of), Lynn County	28	About 2 p.m.	Short	Narrow	0	0	2	1	Tornado	Several small houses overturned and shingles blown off roofs. Tornado moved northeastward.
TEXAS Lakeview (near), Lynn County	28	2 p.m.	Short	Narrow	0	0	1	1	Tornado	Tornado moving northeastward came down on farm land.
TEXAS Brownfield (10 miles north of), Terry County	28	2 p.m.			0	0			Funnel aloft	Moved east-northeastward.
TEXAS Floydada (near), Floyd County	28	3:30 p.m.			0	0			Funnel aloft	
CALIFORNIA San Diego, San Diego County	28	4:40 p.m.			0	0			Waterspout	Observed offshore from Ream Field by personnel of Naval Auxilliary Air Station.
TEXAS Graham (near), Young County	28	11:45 p.m.	Short	Narrow	0	0	1	1	Tornado	Tornado moving northeastward touched twice in farm land.
TEXAS Garland, Dallas County	29	12:30 a.m.					5	1	Wind	Unroofed houses and knocked down powerlines and signs. Falling roofs damaged cars on car lots; water damage to merchandise inside buildings high. Storm moved eastward.
CALIFORNIA McKinleyville, Humboldt County	29	1:40-1:42 p.m.	1	200	0	0	3	1	Waterspout, tornado, and rain	Small tornado reported coming ashore as waterspout, advancing on zig-zag northeastward path, tore roofs from 6 houses, knocked down trees, scattered debris over countryside, slanted telephone poles, and broke powerlines. Witness described funnel 5 feet in diameter, 150 feet long, extending from heavy black cloud. Heavy rain falling.
MASSACHUSETTS Fitchburg, Worcester County	29	Afternoon					4	1	Flood	Water from melting snow accumulated behind road above small artificial pond, because culvert capacity too small. Roadway washed out, releasing rush of water into pond, which in turn exceeded spillway capacity of pond dam. Dam then failed, washing out sections of streets and railroad, flooding cellars, and washing away lawns.
CALIFORNIA Entire State	29- Apr.3				1	0	5		Wind, rain, snow, electrical and tornado	Series of intense storms, fronts moving southeastward across State on 29th, 30th, and 31st and April 1, 2, and 3. Wind gusts to 69 m.p.h., at Montague Airport on 29th. Severe local wind reported as tornado occurred 4 miles northeast of Santa Rosa about 12:05 a.m., on 30th, causing \$2,000 damages to property over path 1/2 mile long and 100 yards wide, with movement northeastward. Earth slide on 31st at Pacific Palisades killed State Highway Engineer and buried trucks and earth-moving equipment working in slide area valued at \$100,000. New slides in San Francisco Bay area on 30th wrecked several more homes. Continued in April storms. Damage estimates for March portion of storm.
IOWA Polk County	30	Afternoon			0	0	2	1	Dust devil	Carried debris and 1 small toolshed aloft; moved northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MARCH 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
IDAHO Idaho Falls vicinity, Bonneville County	30	Late af- ternoon					3		Wind	Brief period of extremely high winds blew off garage roof, toppled fences, mail boxes, and telephone poles. Hillcrest Village area hardest hit. At National Reactor Testing Station, 46 miles west of Idaho Falls, peak gusts reached 63 m.p.h., at surface and 71 m.p.h., on 250-foot tower.
UTAH Entire State	30-31								Snow	Snowstorm knocked down tree limbs and powerlines. A number of traffic accidents resulted from slippery roads.
SOUTH DAKOTA Northern Black Hills, Lawrence County	31	Evening					3		Snow	Heavy, wet snow accumulated to depth of 7 inches, breaking trees and telephone lines.
LATE REPORTS										
KANSAS Penalosa (Southwest of), Kingman County	Feb. 25	Near mid- night							Electrical	During severe electrical storm, barn struck by lightning and completely burned.
KANSAS Meade Area, Meade County	26	Afternoon					3	1	Wind	High northwest wind with severe gusts damaged roofs of 2 schools, blew house trailer off road breaking all glass, twisted a number of TV antennas, and caused other minor damages in and around town. Storm moved southeastward.

* Miles instead of yards.

** Yards instead of miles.

° Includes crop damage.

C Crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5,000,000

7 \$5,000,000 to \$50,000,000

8 \$50,000,000 to \$500,000,000

9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

MARCH 1958

There was no major flooding in continental United States during March.

Severe local flooding occurred in several different areas on Oahu, Hawaii, following the very heavy rains which began on March 5 at 1 a.m. (150 W. Meridian Time). The heavy rains continued for 29 hours with only brief periods of slacking off. Rainfall totals exceeded 10 inches at virtually all stations. The heaviest rainfall was in south-eastern Oahu where storm totals exceeded 18 inches. Lunalilo Home (in the Valley just west of Koko Crater) reported 24 inches of rain during the storm. Other islands, even nearby Molokai (20 miles to the east) received only comparatively light amounts of rain. The areas where the flooding was worst were in Aina Haina (a valley on the south side of the island) and Varsity Circle (a small area in the Manoa Valley). In both of these localities there was flood water in some locations to a depth of several feet. The flat, gently sloping lands along the coast in the areas to the east and north of Diamond Head (Kahala, Waialae-Kahala, parts of Waikiki) were under 2 to 3 feet of water in many places as the storm drains could not handle the water. In general all lowland areas were under a few inches of water at one time or another during the storm. This was especially true in the area to the west of the Koolau Mountains. At least 70 homes and several hundred cars were severely damaged by the flooding. Several roads were washed out. Drainage ditches were destroyed. The damage to crops and farmlands was nominal. Truck crops in some areas were partially washed out. The city and county engineers estimated the total damages at \$400,000. There was one life lost.

ATLANTIC SLOPE DRAINAGE

Heavy rain during the night of February 28 and the morning of March 1 plus snowmelt, caused light flooding along the Charles and Neponset Rivers in Massachusetts. The Neponset River crested at Norwood on the morning of the 1st at a stage of 10 feet, 1 foot above flood stage, and remained above flood stage until the 6th. The Charles River reached flood stage on the 3d at Charles River Village and crested 0.5 foot above flood stage on the 4th. Heavy precipitation in the form of rain and wet snow during the last 2 weeks of the month caused additional light flooding on the Neponset at Norwood from the 15th to the 29th, except for 4 days between the 18th and 21st. The Charles River remained below flood stage during that period but at a level 0.2 to 0.5 foot below bankfull stage.

The light flooding on the Jackson River at Covington, Va., on the 31st was due to heavy rain on the 30th and 31st which averaged 2 inches from Clifton Forge to Covington. Rainfall was lighter along the main stem of the James River, averaging 1.6 inches above Lynchburg and 1.25 inches below.

Minor flooding occurred along the upper Roanoke in Virginia, the lower Cape Fear and Neuse Rivers in eastern North Carolina during the last few days in March. All streams were within their banks at the end of the month except the Neuse at Goldsboro, N. C., which continued in flood until April 5. This high water was due to frequent light to moderate rainfall during the last 3 weeks of the month. There was no damage except for some work stoppage.

The heavy rainfall on the 26th and 27th of February over the Yadkin-Pee Dee Basin caused flooding

on the Pee Dee River at Peedee, S. C., from March 2 to 8. The flooding along Crooked Creek (tributary of Pee Dee) on the 15th and 16th at Bennettsville, S. C., was due to failure of earthen dam of Lake Paul Wallace. Impounded waters rapidly flooded lowlands along the creek causing damage to household furnishings and automobiles. Several hundred persons had to be evacuated.

Heavy rain towards the end of the month caused the Saluda to rise above flood stage on the 31st, cresting at Pelzer, S. C., on April 1 at a stage of 7.5 feet, 1.5 above flood stage. Rainfall during the last 2 days of the month averaged approximately 2 inches over the Santee Basin. There was little or no damage from the flooding.

The Savannah and the Ogeechee Rivers continued at moderate to high stages throughout the month due to frequent moderate precipitation during March. Near the mouth of the Savannah River and the lower reaches of the Ogeechee River, the rivers were above and near bankfull stages all month. No damage was reported.

Little or no damage resulted from the flooding in the lower reaches of the Ocmulgee and Oconee Rivers, the upper Altamaha and the Satilla Rivers in Georgia between the 6th and 28th. Flooding was confined to low places in sparsely settled sections of the state. Little or no damage results in these areas as most of the land is uncultivated or in trees and pastureland.

EAST GULF OF MEXICO DRAINAGE

The Flint River in Georgia and the Apalachicola River in Florida were at moderately high stages in the beginning of the month from the heavy rains near the close of February. These conditions did not change much before the heavy rains from the 6th to the 9th which caused strong rises in the middle and lower stream areas. Flood stages were reached throughout the Apalachicola River and in the Flint River below Montezuma, Ga. No damages resulted from the high water and operations on or near main river streams were not interrupted to any important extent. The high water, especially on the Apalachicola River, was actually beneficial in removal of logs from higher elevations.

Minor flooding occurred on the lower Alabama River between the 9th and the 15th from the heavy rains beginning on the 6th. The rainfall totals during the 3 days ranged from 1.82 inches at Claiborne, Ala., to 9.09 inches at Mathews, Ala. Local flash floods occurred in small streams in central and south Alabama on the 7th, damaging some county highways and bridges. Considerable amount of lowland farmland along the Alabama River was inundated but no damages resulted.

Relatively light rains on February 27, averaging less than 1 inch, caused a minor overflow along the Tombigbee River at Lock 3, Whitfield, Ala., on the 3d. More general rains on the 7th, 8th, and 9th, averaging 3.5 inches caused minor flooding on the lower Tombigbee River. Additional light rains near the end of the month caused minor rises, but no flooding except along the low banks near Whitfield. No damage was reported.

Frequent rains during the month maintained the Pearl River in or near flood in the bottomlands during the last 3 weeks of March. Flooding was general in local areas near Jackson and Monticello, Miss., with more general flooding from above Bogalusa, La.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

MARCH 1958

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The opening dates of navigation on the Mississippi River this year compared to last year are given in the following table:

Mississippi River Navigation Opening Dates

Station	1958	1957
Guttenberg, Iowa	March 15	March 14
La Crosse, Wisc.	March 16	March 14
Minneapolis-St. Paul, Minn.	March 20	March 29

The minor overflow on the Rock River at Moline, Ill., on the 1st was due to an ice jam that formed in the river about 1 mile downstream on February 28. No property damage was reported.

The flooding on the Meramec at Pacific, Mo., between the 9th and the 12th and on the Big Muddy at Murphysboro, Ill., between the 13th and the 18th, was due to heavy rain and wet snow which fell in southern Missouri and southern Illinois on the 8th and 9th. The heavy rains and snow which melted in 24 to 48 hours produced marked rises in all streams in that area. Another period of heavy rain from the 22d to the 24th caused a second rise on the Meramec with general flooding between Sullivan and Valley Park, Mo., and on the Kaskaskia at Carlyle, Ill. The flooding caused some damage to roads which were inundated for short periods of time.

Missouri Basin.--The rains during the last few days of February caused the ice to break up and move out in the lower reaches (20 to 40 miles) of the Floyd, Big Sioux, and Vermillion Rivers in Iowa during the first few days of March. The Missouri River lost most of its ice in the reach from Sioux City, Iowa, to Yankton, S. Dak., from the 15th to the 20th, and in the reach from Bismarck, N. Dak., to Ft. Randall Reservoir (below Chamberlain, S. Dak.,) during the last 3 days of March.

The flooding on the Saline and Solomon Rivers in Kansas during the latter part of the month was due to heavy rains (1.5 to 2 inches) which fell on wet ground having some snow cover. Minor damages resulted on the Saline River in the Lincoln, Kans., area.

Heavy rain and wet snow on the 8th and 9th caused flooding on the Osage at Schell City, Mo., from the 9th to the 19th and on the South Grand at Brownington, Mo., from the 9th to the 13th. The wet snow melted in 24 to 48 hours. Crests on the Osage and South Grand were approximately 5 feet above flood stage. Another period of heavy rain (2 to 3 inches) from the 22d to the 24th caused flooding in the streams in southwestern Missouri. The Sac, Pomme de Terre, and Niangua crested at 1 to 2 feet above flood stage from the 23d to the 25th. The Meramec crested at 3 to 7 feet above flood; the Gasconade at bankfull to 4 feet above; and the Kaskaskia at about 1 foot above, all in the period from the 24th to the 26th. Damage from flooding was limited mostly to roads.

Ohio Basin.--Flooding occurred on the Skillet Fork at Wayne City, Ill., from the 10th to the 12th and from the 24th to the 26th and on the Little Wabash at Wilcox, Ill., from the 24th to the 28th. Little if any losses resulted as previous flooding had occurred earlier during the winter.

White Basin.--The flooding on the Black, Little

Red, and White Rivers in Arkansas, beginning on the 24th, was due to heavy rain (2 to 3 inches) from the 22d to the 24th. Damage from this flooding was minor, being confined principally to the loss of the use of land adjacent to the streams for grazing purposes and to some delay in preparation of land on flood plains for spring planting.

Arkansas Basin.--The first major rise occurred following the general heavy rains on the 7th and 9th. The Walnut River at El Dorado, Kans., rose to slightly over bankfull stage. Further downstream at Augusta and Winfield, Kans., the river rose to about half bankfull stage. In southeastern Kansas, the Verdigris River at Coyville, Kans., crested about 5 feet above bankfull stage. It was near bankfull at Independence and Coffeyville, Kans. The Cottonwood River at Emporia and the Neosho River from Neosho Rapids to Burlington, Kans., crested about two-thirds bankfull stage. The Neosho in the reach from Le Roy to Oswego, Kans., crested near to slightly over bankfull.

Heavy rains occurred again on the 23d and 24th over southeastern Kansas and northwestern Arkansas, causing secondary rises to above bankfull stages in the Walnut and Verdigris in Kansas, and the Petit Jean in Arkansas. Another rise occurred towards the end of the month from the heavy rain on the 29th and 30th. Only the Verdigris River exceeded bankfull stage with minor flooding at Coyville, Kans., on the 30th. The only damage resulting from the high waters was to bottom land along the Verdigris River.

Red Basin.--Light flooding occurred on the Little River at Whitecliffs, Ark., from the 10th to the 12th and on the Sulphur River at Naples, Tex., from the 10th to the 19th, from rainfall during the period from the 4th to the 9th. Rainfall over the Little River Basin averaged 2.56 inches and over the Sulphur Basin 2.38 inches. Little or no losses resulted.

Lower Mississippi Basin.--Light flooding occurred on the St. Francis River at St. Francis, Ark., from the 16th to the 20th. Heavy rains (4 inches) on the 23d and 24th caused additional flooding at St. Francis and also at Fisk, Mo., just below the Wappapello Dam, beginning on the 23d and 24th, respectively. This flooding will cause some delay in preparing bottom land for planting. Otherwise, damage from this flooding is negligible.

WEST GULF OF MEXICO DRAINAGE

The flooding on the Sabine River in Texas between the 9th and 20th was due to moderate rainfall during the period from the 5th to the 9th. No damage resulted.

The East Fork of the Trinity River reached flood stage at Rockwall, Tex., on the morning of March 27, due to routine releases from Lavon Reservoir. The stage at Rockwall continued slightly above flood stage until the morning of the 29th when brief heavy rain caused a sharp rise in streams of the upper Trinity. Gates were closed at Lavon the morning of the 29th, and the river started falling by evening after reaching a crest of 12 feet.

At the beginning of March, the Nueces was falling as far downstream as Mathis Dam, Texas. The crest reached Calallen, Tex., on the 2d at a stage of 4.2 feet above flood stage. No damage was reported. A detailed report of this flood is given in the previous issue of this publication.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

MARCH 1958

PACIFIC SLOPE DRAINAGE

Heavy rain (2.5 inches) on the 14th to the 16th caused creeks in the upper San Benito Basin in California to overflow. Santa Margarita reported over 5 inches of rain during the period from the 13th to the 17th. Eight families were evacuated from their homes along the Salinas River at Paso Robles, Calif., on the 15th. By month's end most San Francisco Bay area reservoirs were filled to capacity. Matadero Creek in Palo Alto, Calif., threatened to flood several homes after overflowing on the 21st.

Following the major storm on February 24, there was a 2-1/2 week respite that enabled all streams

in the Sacramento Valley in California to recede to their lowest levels since mid-January. A marked change in the weather pattern around mid-March forced much colder storms across northern and central California. These colder storms intensified just offshore and brought heavier precipitation to the central valleys of California, with the snow level generally near 3,000 feet but on occasions as low as 1,500 feet. The snow pack in the Sierra began building up rapidly the last 3 days of the month. No danger stages were reached during the last half of March, but overflow began again at all flood control project weirs.

FLOOD STAGE DATA

(All dates in March unless otherwise specified)

MARCH 1958

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
ATLANTIC SLOPE DRAINAGE					
Charles: Charles River Village, Mass.	4	3	8	4.5	4
Neponset: Norwood, Mass.	5	1 15 22	6 17 29	10.0 9.2 9.3	1 15 25
Jackson: Covington, Va.	7	31	31	7.7	31
Roanoke: Randolph, Va.	21	28	28	21.0	28
Neuse: Neuse, N. C.	14	Feb. 28	4	#16.5	2
Smithfield, N. C.	13	Feb. 28 27	5 29	#16.8 #15.6	2 27
Goldsboro, N. C.	14	29	Apr. 5	17.5	Apr. 2
Kinston, N. C.	14	4	12	15.45	9
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	27	29	22.9	28
Pee Dee: Pee Dee, S. C.	19	2	8	21.0	5
Saluda: Pelzer, S. C.	6	Feb. 28 31	1 1/	6.3 7.5	1 Apr. 1
Broad: Blair, S. C.	14	Feb. 28	1	16.8	Feb. 28
Savannah: Clio, Ga.	11	Jan. 28	1/	12.4 13.5 13.0 13.9	Feb. 4-5 Feb. 21-22 9-11 22-23
Ogeechee: Dover, Ga.	7	7	20	7.55 7.7	11 14
Ocmulgee: Abbeville, Ga.	12	2 6	3 19	14.35	12
Altamaha: Charlotte, Ga.	15	8	24	18.5	16, 19
Oconee: Mount Vernon, Ga.	16	10	16	17.15	13
Satilla: Atkinson, Ga.	12.5	7	28	14.4	19
EAST GULF OF MEXICO DRAINAGE					
Flint: Albany, Ga.	20	11	15	22.8	14
Bainbridge, Ga.	25	14	16	25.7	16
Apalachicola: Chattahoochee, Fla.	20	10	12	21.65	11
Blountstown, Fla.	15	1	27	22.1	12
Alabama: Millers Ferry, Ala.	40	9	14	44.2	11, 12
Claiborne, Ala.	40	11	15	42.0	14
Tombigbee: Lock 4, Demopolis, Ala.	42	9	13	44.6	10
Lock 3, Whitfield, Ala.	33	2 8 28	3 21 Apr. 2	35.0 46.1 36.5	3 10 30
Lock 2, Pennington, Ala.	46	9	14	48.9	10
Lock 1, Jackson, Ala.	31	9	21	34.2	12, 13
Pearl: Jackson, Miss.	18	9	1/	25.95	19
Monticello, Miss.	19	24	28	20.5	26
Bogalusa, La.	15	Jan. 24	3	17.4 17.0 18.65	Feb. 10 Feb. 20 30-31
Pearl River, La.	12	8	1/	14.6 14.4	13 28
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Rock: Moline, Ill.	13	1	1	13.15	1
Meramec: Sullivan, Mo.	12	24	26	18.2	25
Pacific, Mo.	11	9 25	12 28	#14.3 18.4	11 27
Valley Park, Mo.	16	26	28	19.05	27
Kaskaskia: Carlyle, Ill.	21	27	31	22.0	29
Big Muddy: Murphysboro, Ill.	16	13	18	#18.2	15
Missouri Basin					
Saline: Wilson, Kans.	12	30	30	15.6	30
Lincoln, Kans.	30	30	Apr. 1	33.6	31
Tescott, Kans.	25	31	Apr. 2	28.15	Apr. 1-2
MISSISSIPPI SYSTEM (Cont'd.) Missouri Basin (Cont'd.)					
Solomon: Beloit, Kans.	20	30	31	#20.7	31
Sac. Stockton, Mo.	18	23	25	#20.3	24
Pomme de Terre: Hermitage, Mo.	22	24	24	#23.4	24
South Grand: Brownington, Mo.	19	9	13	#24.1	11
Niangua: Decaturville, Mo.	84	24	25	#86.1	25
Marais des Cygnes: Osawatomie, Kans.	28	9	11	30.8	11
La Cygne, Kans.	25	9	13	28.3	12
Trading Post, Kans.	24	10	14	24.7	13
Osage: Shell City, Mo.	25	9 27	19 28	#29.4 #25.3	13 27
Gasconade: Jerome, Mo.	15	24	26	#19.2	25
Hazlegreen, Mo.	21	24	24	21.3	24
Rich Fountain, Mo.	20	26	27	20.8	26
Ohio Basin					
Skillet Fork: Wayne City, Ill.	15	10 24	12 28	16.8 18.5	10 25
Little Wabash: Wilcox, Ill.	16	24	28		26-27
White Basin					
Black: Poplar Bluff, Mo.	16	24	25	17.4	25
Pocahontas, Ark.	17	24	1/	22.2	29
Black Rick, Ark.	14	25	1/	23.4	30
Little Red: Heber Springs, Ark.	24	24	24	27.6	24
Judsonia, Ark.	30	25	26	33.2	25
White: Georgetown, Ark.	21	27	1/		
Clarendon, Ark.	26	24	1/		
St. Charles, Ark.	25	28	1/		
Arkansas Basin					
Walnut: Eldorado, Kans.	15	9 23	9 23	15.1 16.0	9 23
Verdigris: Coyville, Kans.	28	9 23 30	10 24 30	33.3 33.5 30.1	9 24 30
Independence, Kans.	30	24	25	35.9	25
Neosho: Iola, Kans.	15	9	10	15.3	9
Chanute, Kans.	20	10	10	20.3	10
Oswego, Kans.	17	10	13	18.1	10
Petit Jean: Danville, Ark.	20	24	25	20.6	24
Red Basin					
Little River: Whitecliffs, Ark.	25	10	12	25.7	11
Sulphur: Naples, Tex.	22	10	19	26.4	12
Lower Mississippi Basin					
St. Francis: Fisk, Mo.	20	24	1/	24.45	31
St. Francis, Ark.	18	16 23	20 1/	18.4 21.8	19 29
WEST GULF OF MEXICO DRAINAGE					
Sabine: Mineola, Tex.	14	9	16	17.2	13
Gladewater, Tex.	26	18	20	26.25	19
East Fork Trinity: Rockwall, Tex.	10	27	29	12.3	29
Nueces: Three Rivers, Tex.	35	Feb. 23	1	43.0	Feb. 26
Mathis Dam, Tex.	74	Feb. 20	7	83.9	1
Calallen, Tex.	7	Feb. 22	8	11.2	2
PACIFIC SLOPE DRAINAGE					
Russian: Hopland Largo Station, Calif.	21	Feb. 24	Feb. 24	22.9	Feb. 24

FLOOD STAGE DATA

(All dates in March unless otherwise specified)

MARCH 1958

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
PACIFIC SLOPE DRAINAGE (Cont'd.)	<i>Ft</i>			<i>Ft</i>	
Russian (Cont'd.): Healdsburg, Calif.	19	Feb. 24	Feb. 25	22.35	Feb. 25
Guerneville, Calif.	29	Feb. 4 Feb. 12 Feb. 19 Feb. 24	Feb. 5 Feb. 13 Feb. 20 Feb. 26	29.8 31.6 31.8 40.0	Feb. 5 Feb. 12 Feb. 19 Feb. 25
Sacramento: Moulton Weir, Calif.	77	Feb. 1 22 31	4 24 31	83.7 78.4 76.5	Feb. 20 22 31

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
PACIFIC SLOPE DRAINAGE (Cont'd.)	<i>Ft</i>			<i>Ft</i>	
Sacramento (Cont'd.): Colusa Weir, Calif.	62	Feb. 1 21	7 31	69.8 66.0	Feb. 26 23
Tisdale Weir, Calif.	46	Feb. 1 21	11 31	51.8 49.0	Feb. 27 31
Fremont Weir, Calif.	34	Feb. 1 22	10 31	38.7 36.0	Feb. 26 25
* Provisional					
# Highest Stage Observed					
1/ Continued at end of month					

Average monthly values

MARCH 1958

See reference note at end of table

Average monthly values

MARCH 1958

		CARIBOU, ME. (990 MB.)					CHARLESTON, S. C. (1013 MB.)					COLD BAY, ALASKA (1010 MB.)					COLUMBIA, MO. (989 MB.)					DAYTON, OHIO (981 MB.)								
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity			Wind			Dynamic height	Temperature	Relative humidity			Wind			Dynamic height	Temperature	Relative humidity			Wind							
				Direction	Speed	Number of observations	Direction	Speed	Number of observations			Direction	Speed	Number of observations	Direction	Speed	Number of observations			Direction	Speed	Number of observations	Direction	Speed	Number of observations	Direction	Speed	Number of observations		
SURFACE	31	191	- 2.8	86	344	5.8	31	13	7.5	91	330	3.5	31	27	0.4	88	188	4.7	31	238	0.2	85	22	2.9	31	297	- 0.5	79	355	3.1
1,000----	31	112					31	119	9.2	78	327	3.7	31	104			177	4.1	31	152				6.2	31	140				
950-----	31	520	- 2.6	73	30	8.5	31	541	8.3	71	306	5.1	31	512			204	5.2	31	564	- 0.4	75	51	6.9	31	547	- 1.0	78	14	5.6
900-----	31	947	- 4.4	73	48	11.1	31	990	6.8	69	283	9.9	31	942	- 3.5	67	214	5.4	31	994	- 2.3	77	66	6.0	31	981	- 3.0	75	3	5.6
850-----	31	1,397	- 5.5	72	57	11.5	31	1,439	5.1	61	274	15.5	31	1,422	- 5.7	63	228	6.4	31	1,447	- 3.9	78	37	3.5	31	1,433	- 4.5	72	328	6.2
800-----	30	1,871	- 6.7	67	60	12.1	31	1,954	3.2	51	273	20.8	31	1,865	- 8.0	53	228	8.5	31	1,925	- 5.1	73	341	4.1	31	1,910	- 6.1	69	301	6.6
750-----	30	2,372	- 8.9	63	60	10.7	31	2,472	1.1	47	271	24.3	31	2,364	- 10.7	48	232	8.9	31	2,428	- 6.5	66	311	7.0	31	2,412	- 7.6	62	288	9.9
700-----	30	2,906	-11.7	55	60	10.9	31	3,028	- 1.7	46	272	29.1	31	2,892	-13.3	46	237	11.5	31	2,969	- 4.8	58	293	11.3	31	2,950	- 9.8	53	284	13.4
650-----	30	3,468	-14.7	47	57	9.5	31	3,611	- 4.5	43	271	33.6	31	3,451	-16.4	43	242	8.5	31	3,534	-11.3	53	286	16.5	31	3,515	-12.6	51	279	16.5
600-----	30	4,073	-18.0	45	52	9.5	31	4,242	- 8.1	40	273	38.3	31	4,050	-19.9	42	264	11.1	31	4,151	-14.7	50	283	23.5	31	4,128	-15.8	43	278	20.0
550-----	30	4,713	-22.0	44	56	8.2	31	4,907	-12.0		273	46.8	31	4,686	-24.0	44	242	9.5	31	4,798	-19.0	45	283	26.6	31	4,776	-19.5	41	278	24.3
500-----	30	5,413	-26.7	44	52	6.6	31	5,611	-10.5		272	51.7	31	5,380	-28.5	44	227	13.0	31	5,508	-23.6	43	280	29.3	31	5,482	-23.5	39	276	29.3
450-----	30	6,161	-32.1	44	44	4.5	30	6,419	-21.9		267	57.5	31	6,122	-33.6	43	215	14.8	31	6,261	-29.4	43	277	32.8	31	6,238	-29.5	38	273	39.0
400-----	30	6,988	-38.2		47	2.9	30	7,282	-28.0		266	65.3	31	6,945	-38.9		212	18.5	31	7,100	-35.5	45	275	38.1	31	7,075	-35.7		267	39.2
350-----	30	7,893	-45.0			.0	30	8,228	-34.9		265	75.2	31	7,849	-44.7		219	18.1	31	8,017	-42.0		271	43.9	31	7,990	-42.4		263	45.0
300-----	30	8,906	-52.8		144	2.1	29	9,290	-42.5		265	82.8	31	8,868	-49.8		263	17.7	31	9,044	-49.1		264	53.0	31	9,017	-49.2		265	53.0
250-----	30	10,067	-58.0		248	4.5	26	10,491	-50.6		265	90.5	31	10,048	-54.0		264	13.8	31	10,224	-55.1		263	61.0	31	10,198	-54.2		267	64.7
200-----	30	11,480	-55.1		269	13.2	23	11,929	-56.8		267	99.5	31	11,474	-55.0		222	8.0	31	11,643	-55.0		265	61.4	31	11,623	-55.0		267	64.7
150-----	30	12,938	-52.8		267	13.6	21	13,387	-56.7		269	97.3	31	12,911	-53.4		279	7.2	31	13,094	-55.1		266	57.5	31	12,880	-53.3		267	60.0
100-----	29	13,336	-52.0		271	15.3	20	13,766	-57.8		267	88.0	31	13,325	-52.8		254	6.0	31	13,481	-54.2		266	51.1	31	13,472	-53.5		267	52.5
50-----	26	14,519	-52.0		273	17.9	18	14,916	-60.8		269	75.2	31	14,504	-52.3		321	5.6	31	14,648	-55.2		265	45.7	31	14,642	-54.4		265	42.6
10-----	25	15,963	-52.5		276	16.7	17	16,297	-63.6		266	55.8	31	15,948	-52.5		336	4.5	31	16,070	-56.1		265	37.3	31	16,071	-55.1		265	33.8
0-----	23	17,401	-53.5		276	18.1	17	17,664	-63.7		265	46.6	31	17,389	-52.9		349	6.8	31	17,488	-56.3		261	29.0	30	17,496	-55.2		266	25.1
60-----	23	19,250	-54.2		283	18.1	14	19,446	-60.7		272	17.5	31	19,248	-52.6				31	19,319	-55.5		265	19.9	30	19,305	-55.0		267	17.3
50-----	23	20,419	-54.2		283	18.3	13	20,582	-58.1		301	12.8	31	20,423	-53.8				31	20,484	-54.5		264	12.0	30	20,534	-54.2		276	12.2
40-----	21	21,618	-54.2		282	17.5	11	22,075	-56.7		353	9.1	31	21,521	-55.7				31	21,920	-55.2		272	11.3	26	21,945	-54.4		293	8.7
30-----	18	23,686	-54.1		279	16.9	10	23,852	-51.8				26	23,696	-55.3				31	23,786	-50.6		280	8.0	19	23,803	-51.0		298	10.5
25-----	15	24,848	-53.9		278	22.0	7	25,100	-49.0				22	24,855	-55.5				21	24,966	-49.5		318	4.1	12	25,031	-48.6			
20-----	15	26,288	-51.5		283	26.2							6	26,263	-57.2				6	26,438	-47.1									
15-----	13	28,178	-47.4		276	31.1																								

DENVER, COLO. (834 MB.)							DODGE CITY, KANS. (924 MB.)							EL PASO, TEX. (878 MB.)							ELY, NEV. (802 MB.)							FAIRBANKS, ALASKA (1000 MB.)						
SURFACE	31	1,611	-4.2	88	269	0.6	31	792	-2.8	93	9	5.1	31	1,197	6.4	70	196	0.8	31	1,908	-4.7	85	182	5.6	31	125	-11.9	70	4	1.4				
1,000----	31	153					31	163					31	108					31	136					31	137				0.				
950-----	31	563					31	575					31	535					31	553					31	537	-6.5	59	89	3.0				
900-----	31	997					31	1,004	-1.6				31	986					31	993					31	959	-7.4	55	130	3.7				
850-----	31	1,457					31	1,459	-2.1	74	354	3.3	31	1,459	7.0	57	260	1.9	31	1,446					31	1,403	-9.1	55	186	3.7				
800-----	31	1,937	-3.0	73	299	2.9	31	1,940	-2.5	67	304	7.2	31	1,955	4.6	57	268	8.4	31	1,929					31	1,871	-11.1	56	219	3.7				
750-----	31	2,446	-5.1	67	300	5.2	31	2,450	-4.1	64	294	9.3	31	2,474	1.6	56	260	16.3	31	2,440	-4.8	74	183	5.2	31	2,360	-13.5	50	226	4.5				
700-----	31	2,987	-7.5	63	294	6.4	31	2,993	-6.6	63	285	10.9	31	3,030	-2.0	59	257	17.5	31	2,979	-8.0	70	233	6.8	31	2,886	-16.6	52	235	6.0				
650-----	31	3,556	-11.1	60	294	11.7	31	3,564	-9.8	59	281	15.0	31	3,610	-8.6	56	258	20.6	31	3,546	-11.5	63	253	11.7	31	3,430	-20.8	53	244	8.2				
600-----	31	1,771	-14.9	57	288	13.8	31	1,482	-13.7	54	283	18.1	31	4,240	-9.7	49	254	24.9	31	4,159	-15.4	57	260	15.2	31	4,030	-23.3	51	255	8.2				
550-----	31	4,822	-19.4	56	288	15.2	31	4,836	-17.7	48	279	22.3	31	4,901	-13.8	44	259	31.5	31	4,809	-19.8	50	261	17.5	31	4,657	-27.1	48	265	9.1				
500-----	31	5,526	-24.5	51	279	19.6	31	5,546	-22.8	44	281	26.2	31	5,625	-19.1	50	259	32.6	31	5,512	-24.8	45	260	19.4	31	5,343	-31.3	44	262	9.1				
450-----	31	6,278	-30.2	45	275	22.3	31	6,304	-28.3	41	279	31.7	31	6,393	-24.7		261	35.8	31	6,266	-30.5	43	258	17.7	31	6,074	-36.2		263	14.6				
400-----	30	7,113	-36.4	40	275	26.6	31	7,145	-34.8	39	277	32.3	31	7,249	-30.6		264	44.1	31	7,097	-36.9	47	265	24.1	31	6,891	-41.8		270	17.1				
350-----	30	8,026	-43.3		274	28.4	31	8,065	-41.3		271	36.9	31	8,185	-37.4		268	49.0		31	8,008	-44.1		251	19.4	31	7,784	-48.0		265	19.9			
300-----	30	9,048	-51.1		278	33.0	29	9,105	-48.8		269	41.4	31	9,232	-44.9				31	9,025	-51.9		243	17.3	31	8,786	-54.1		260	22.2				
250-----	30	10,212	-57.6		273	38.3	28	10,285	-55.4		262	43.1	31	10,429	-53.0				31	10,191	-57.5		251	14.6	31	9,946	-57.0		260	22.7				
200-----	30	11,620	-57.6		270	46.1	27	11,697	-57.2		265	50.9	31	11,794	-57.2				31	11,596	-57.4		240	15.7	31	11,397	-57.4		257	22.0				
175-----	30	12,468	-55.7		271	44.7	27	12,544	-55.7		266	53.6	31	12,691	-58.3				31	12,443	-56.2		275	22.3	30	12,232	-52.1		253	17.7				
150-----	30	13,452	-55.2		271	41.4	26	13,526	-55.5		263	53.4	30	13,659	-60.1				31	13,425	-55.5		271	23.5	30	13,233	-51.2		265	13.2				
125-----	29	14,614	-55.5		271	38.9	26	14,687	-56.1		272	56.9	30	14,792	-62.3				31	14,587	-55.6		277	24.0	30	14,118	-51.2		256	9.9				
100-----	29	16,037	-55.5		268	31.3	24	16,101	-57.2				29	16,165	-64.3				31	16,006	-56.8				29	15,869	-51.8		261	10.7				
80-----	29	17,458	-55.5		267	24.5	23	17,516	-56.7				29	17,532	-63.8				31	17,418	-57.0				28	17,321	-52.0							
60-----	27	19,292	-55.9		261	16.5	20	19,336	-56.3				27	19,305	-61.0				31	19,241	-56.7				26	19,181	-53.3							
50-----	26	20,451	-55.7		258	14.4	20	20,497	-55.4				24	20,447	-58.5				30	20,399	-55.2				26	20,353	-54.7							
40-----	25	21,876	-54.4		260	13.6	19	21,925	-53.9				22	21,859	-55.8				27	21,826	-54.9				26	21,776	-56.1							
30-----	24	23,515	-53.5		265	16.1	17	23,578	-52.0				16	23,716	-52.4				23	23,665	-52.4				25	23,605	-54.7							
25-----	20	24,907	-52.2		260	22.0	12	24,963	-50.8				10	24,919	-49.3				15	24,842	-52.2				22	24,759	-58.7							
20-----	6	26,364	-50.5										5	26,358	-47.3										19	26,156	-59.9							
15-----																									14	27,966	-60.5							

FLINT, MICH. (989 MB.)										FORT WORTH, TEX. (994 MB.)										GLASGOW, MONT. (935 MB.)										GRAND JUNCTION, COLO. (847 MB.)										GREAT FALLS, MONT. (885 MB.)									
SURFACE	31	234	- 1.8	85	344	2.1	31	180	7.0	83	340	2.1	31	696	- 5.8	89	97	5.6	31	1,474	- 1.4	71	113	5.1	31	1,123	- 4.7	84	242	4.1																			
1,000----	31	147					31	132					31	163					31	1,151					31	151																							
950-----	31	558	- 1.9	74	11	6.2	31	552	6.6	73	325	3.1	31	568					31	532					31	560																							
900-----	31	985	- 4.0	69	11	8.0	31	998	5.0	71	290	5.2	31	995	- 4.9	80	121	8.4	31	976					31	994																							
850-----	31	1,434	- 6.3	68	359	8.0	31	1,465	4.6	63	278	9.3	31	1,445	- 5.2	76	141	4.5	31	1,443					31	1,442	- 4.0	71	247	4.9																			
800-----	31	1,907	- 8.1	59	348	8.0	31	1,958	3.2	58	277	13.4	31	1,920	- 6.5	72	174	1.6	31	1,931	- .6		60	149	4.5	31	1,919	- 5.9	70	250	5.6																		
750-----	31	2,407	- 9.8	54	337	8.7	31	2,480	- .7	56	270	17.5	31	2,422	- 8.5	68	255	2.1	31	2,439	- 3.1	63	208	4.3	31	2,418	- 8.2	70	263	4.4																			
700-----	31	2,937	-11.9	50	327	8.7	31	3,031	- 2.4	54	271	21.6	31	2,956	-11.3	66	281	4.7	31	2,988	- 7.3	67	239	7.6	31	2,936	-11.1	69	254	6.2																			
650-----	31	3,501	-14.4	43	308	11.1	31	3,612	- 5.6	50	272	27.4	31	3,517	-14.4	62	289	6.0	31	3,554	-11.6	69	248	9.5	31	3,514	-14.4	66	260	7.2																			
600-----	31	4,106	-17.7	39	287	13.0	31	4,239	- 4.7	47	269	32.4	31	4,125	-18.1	57	270	7.2	31	4,170	-15.6	62	255	14.4	31	4,125	-18.1	61	254	8.8																			
550-----	31	4,750	-21.6	38	289	10.0	31	4,899	-13.9	44	265	37.9	31	4,766	-22.3	51	270	7.4	31	4,817	-19.8	53	260	17.3	31	4,767	-22.2	58	249	9.5																			
500-----	30	5,450	-26.2	38	285	17.3	31	5,624	-18.7	40	262	44.5	31	5,464	-27.2	48	265	8.1	31	5,521	-24.4	44	261	18.1	31	5,466	-27.1	53	248	11.1																			
450-----	30	6,201	-31.5	41	281	19.2	31	6,392	-24.0	38	263	50.3	31	6,205	-32.9	46	267	10.9	31	6,274	-30.3	43	269	20.6	31	6,208	-32.8	50	240	13.0																			
400-----	30	7,028	-37.6		273	23.7	31	7,251	-30.4	40	262	58.3	31	7,034	-39.2	49	271	13.6	31	7,107	-36.7	38	273	16.7	31	7,038	-39.2		239	14.4																			
350-----	30	7,937	-44.2		270	28.0	31	8,188	-37.3		262	65.3	31	7,935	-46.4		270	16.5	31	8,019	-43.9		277	12.6	31	7,939	-46.3		242	15.9																			
300-----	30	8,955	-51.2		270	30.9	31	9,236	-44.9		264	73.3	31	8,942	-54.2		274	16.3	31	9,037	-51.7		280	17.5	31	8,945	-53.9		250	15.5																			
250-----	30	10,126	-56.1		266	38.3	31	10,431	-53.3		265	81.0	31	10,094	-60.1		253	18.7	31	10,201	-58.2		269	20.6	31	10,100	-59.8		259	17.1																			
200-----	30	11,547	-54.5		269	41.0	31	11,850	-57.7		265	91.3	31	11,490	-58.1		256	14.2	31	11,602	-57.9		259	30.3	31	11,495	-58.7		263	17.7																			
175-----	30	12,405	-53.9		270	37.9	29	12,699	-58.3		265	92.3	31	12,337	-55.6		271	13.4	31	12,448	-56.1		257	31.9	31	12,340	-55.8		265	15.9																			
150-----	30	13,401	-52.7		267	36.1	29	13,668	-59.0		259	81.0	31	13,322	-54.3		262	12.2	31	13,431	-54.3		257	31.7	31	13,324	-54.4		270	15.7																			
125-----	30	14,579	-52.8		265	30.9	27	14,808	-60.7		271	67.4	31	14,494	-59.3		271	12.8	31	14,593	-56.1		249	23.7	31	14,493	-54.3		272	13.8																			
100-----	29	16,018	-53.5		266	26.8	26	16,187	-62.4		270	54.2	31	15,926	-54.2		268	12.4	31	16,011	-56.6		251	19.8	31	15,922	-54.6		269	15.1																			
80-----	29	17,452	-54.1		266	21.6	26	17,563	-62.8		270	35.9	31	17,356	-54.8		265	13.4	30	17,423	-57.5		248	16.5	30	17,349	-55.3		264	16.4																			
60-----	29	19,297	-54.2		267	16.4	24	19,347	-61.1		263	17.7	31	19,192	-55.6		255	14.2	30	19,249	-56.2		230	10.1	30	19,181	-55.8		259	15.3																			
50-----	29	20,467	-53.8		273	17.3	22	20,486	-58.4		256	9.1	31	20,355	-55.4		255	16.9	29	20,411	-55.3		224	8.5	29	20,337	-56.2		252	17.7																			
40-----	29	21,904	-52.9		278	14.0	21	21,898	-56.3		80	2.1	31	21,777	-55.9		254	19.2	28	21,843	-54.4				29	21,754	-56.1		249	18.4																			
30-----	23	23,779	-51.4		290	13.2	20	23,744	-52.7		84	3.3	23	23,604	-55.8		259	21.2	18	23,686	-53.3				28	23,581	-56.4		251	24.1																			
20-----	18	24,969	-50.7		283	13.2	11	24,941	-54.1		111	3.7	9	24,711	-56.4				9	24,859	-51.4				21	24,739	-56.4		254	28.6																			
15-----	6	26,405	-50.7				11	26,416	-47.2															8	26,120	-56.3																							
							7	28,322	-44.3																																								

See reference note at end of table

Average monthly values

MARCH 1958

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Average monthly values

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RAWINSONDE DATA

Average monthly values

MARCH 1958

RAPID CITY, S. DAK. (904 MB.)										ST. CLOUD, MINN. (982 MB.)										ST. PAUL IS., ALASKA (1007 MB.)										SALEM, OREG. (1005 MB.)										SALT LAKE CITY, UTAH (867 MB.)																				
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind																				
Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed																			
SURFACE	31	966	- 4.3	83	116	1.4	31	316	- 5.1	82	359	1.7	31	10	- 0.8	90	179	6.4	31	61	3.0	92	170	3.7	31	1,288	0.5	79	155	8.4																														
1,000--	31	159											31	172										173	2.9	31	124																																	
950--	31	969											31	172										166	6.4	31	538																																	
900--	31	999											31	1,003	- 4.7	63	50	1.7	31	895	- 4.9	74	214	8.9	31	955	1.9	66	187	8.7	31	981																												
850--	31	1,449	- 4.0	73	216	3.5							31	1,451	- 4.9	59	10	3.1	31	1,343	- 6.9	68	218	9.9	31	1,414	- 1.1	66	199	9.9	31	1,445	1.7	64	156	7.8																								
800--	31	1,926	- 5.7	69	241	5.1	31	1,923	- 8.8	57	358	3.9	31	1,814	- 9.2	59	224	10.9	31	1,895	- 4.3	64	211	11.3	31	1,932	- 1.3	63	174	8.4																														
750--	31	2,427	- 7.5	66	272	4.9	31	2,423	- 10.8	54	340	4.7	31	2,310	- 11.6	49	223	12.4	31	2,394	- 7.6	61	218	11.5	31	2,440	- 5.0	67	199	6.4																														
700--	31	2,965	- 10.2	60	284	6.4	31	2,949	- 13.1	55	330	5.6	31	2,837	- 14.6	47	232	12.4	31	2,934	- 10.8	55	221	11.9	31	2,982	- 8.8	71	226	7.0																														
650--	31	3,526	- 13.3	57	280	7.0	31	3,512	- 15.8	54	320	7.0	31	3,391	- 18.1	45	234	13.2	31	3,495	- 14.6	53	228	12.2	31	3,545	- 12.8	70	242	10.7																														
600--	31	4,139	- 16.8	53	287	10.5	31	4,110	- 19.1	52	311	10.3	31	3,989	- 21.9	43	231	9.5	31	4,102	- 18.7	52	237	12.6	31	4,159	- 16.5	63	248	12.4																														
550--	31	4,780	- 21.3	50	282	11.7	31	4,754	- 22.8	50	309	12.2	31	4,619	- 26.2	44	243	9.9	31	4,741	- 23.0	47	250	11.3	31	4,804	- 20.8	61	243	15.2																														
500--	31	5,483	- 26.2	48	288	12.8	31	5,446	- 27.5	48	301	12.8	31	5,307	- 30.7	48	250	8.0	31	5,438	- 27.7	44	262	12.0	31	5,506	- 25.5	57	241	17.5																														
450--	31	6,228	- 31.9	46	288	14.8	31	6,193	- 32.8	45	301	15.3	31	6,042	- 36.1	52	241	8.4	31	6,180	- 33.1	42	269	13.4	31	6,256	- 31.0	53	250	19.0																														
400--	31	7,058	- 38.2	48	287	15.7	31	7,016	- 38.8		297	17.3	31	6,856	- 41.4		273	12.8	31	7,006	- 39.5		273	15.2	31	7,088	- 37.0	47	254	24.7																														
350--	31	7,963	- 45.4		286	18.1	31	7,919	- 45.7		296	19.8	31	7,753	- 46.3		260	19.6	31	7,907	- 46.0		272	17.3	31	7,998	- 44.0		261	26.8																														
300--	31	8,974	- 53.2		282	21.2	31	8,930	- 53.0		292	19.2	31	8,767	- 51.0		253	21.4	31	8,919	- 52.3		286	20.8	31	9,016	- 51.7		260	30.9																														
250--	31	10,129	- 59.6		276	23.9	31	10,089	- 58.3		283	17.5	31	9,946	- 53.0		248	26.8	31	10,085	- 56.6		285	23.7	31	10,179	- 58.9		258	36.3																														
200--	31	11,524	- 58.5		269	25.1	31	11,499	- 55.8		275	17.3	31	11,386	- 52.3		251	26.2	31	11,497	- 56.9		283	25.8	31	11,577	- 58.3		265	39.4																														
175--	31	12,368	- 56.2		268	25.8	31	12,353	- 54.0		269	18.3	31	12,253	- 51.2		245	23.7	31	12,346	- 55.3		282	21.6	31	12,422	- 56.5		266	34.8																														
150--	31	13,551	- 55.2		267	25.3	31	13,345	- 53.1		269	19.6	31	13,257	- 50.4				29	13,336	- 54.2		287	19.8	31	13,403	- 55.2		268	33.6																														
125--	31	14,517	- 54.5		266	24.5	31	14,521	- 53.1		265	18.1	31	14,448	- 50.1				29	14,504	- 54.7		285	20.6	31	14,568	- 55.3		266	29.7																														
100--	31	15,944	- 55.0		263	22.5	31	15,958	- 53.5		264	18.1	31	15,905	- 50.3				29	15,931	- 55.1		284	17.3	31	15,994	- 55.2		263	25.5																														
75--	31	17,371	- 55.5		260	19.8	31	17,392	- 54.0		266	17.7	29	17,361	- 51.0				29	17,354	- 55.8		279	14.8	26	17,419	- 56.3		258	20.4																														
50--	31	19,207	- 55.2		258	17.9	31	19,240	- 53.9		260	16.3	29	19,235	- 51.0				29	19,181	- 56.7		275	13.6	26	19,246	- 56.6		251	17.9																														
25--	31	20,370	- 55.6		256	18.1	31	20,410	- 53.9		261	15.3	29	20,420	- 51.6				29	20,336	- 56.9		274	13.0	25	20,403	- 56.1		255	18.7																														
10--	31	21,795	- 55.0		256	19.0	31	21,845	- 53.3		260	15.7	28	21,865	- 52.7				26	21,751	- 56.7		267	14.8	24	21,830	- 54.7		256	18.3																														
5--	31	23,129	- 54.3		257	23.7	31	23,141	- 52.8		255	23.1	27	23,164	- 53.7				19	23,077	- 56.3		262	23.7	19	23,153	- 54.3		257	22.7																														
0--	31	24,804	- 53.8		260	28.8	31	24,893	- 51.9					24	26,323	- 54.8				11	26,157	- 55.2					11	26,272	- 52.0																															
10--	31	26,248	- 52.3		10	26,346	- 52.2							20	28,164	- 55.3																																												
10--	31													7	30,781	- 53.6																																												

SAN ANTONIO, TEX. (986 MB.)										SAN DIEGO, CALIF. (998 MB.)										SAN JUAN, P. R. (1015 MB.)										SANTA MARIA, CALIF. (1005 MB.)										SANTA MONICA, CALIF. (1010 MB.)									
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind									
Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction</																					

SAN ANTONIO, TEX. (986 MB.)										SAN DIEGO, CALIF. (998 MB.)										SAN JUAN, P. R. (1015 MB.)		
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Average monthly values

MARCH 1958

		TAMPA, FLA. (1013 MB.)					TATOOSH IS., WASH. (1007 MB.)					TONOPAH, NEV. (827 MB.)					TOPEKA, KANS. (986 MB.)					TUCSON, ARIZ. (922 MB.)								
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind							
					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed						
SURFACE	31	8	14.5	89	61	1.0	31	31	6.8	82	98	7.2	5	1,650	- 0.1				31	269	- 0.3	83	31	5.1	31	781	7.3	78	166	2.5
1,000----	31	121	15.2	78	47	.8	31	87			112	8.0	5	98					31	158			31		31	107				
950----	31	128	13.8	74	237	5.1	31	502	4.0	71	148	7.8	5	526					31	568	- 7	77	47	7.0	31	531				
900----	31	1,012	12.1	66	249	9.9	31	944	1.0	71	165	7.4	5	964					31	1,000	- 2.7	78	59	7.2	31	985	9.2	58	183	3.3
850----	31	1,490	10.1	61	259	13.4	31	1,402	- 2.2	71	174	7.2	5	1,428					31	1,452	- 3.8	72	39	4.1	31	1,457	6.3	57	224	4.1
800----	31	1,992	8.0	59	263	17.7	31	1,881	- 5.3	67	183	7.8	5	1,917	- 1.5				31	1,930	- 4.6	63	344	5.6	31	1,951	2.8	58	235	8.4
750----	31	2,523	5.7	55	263	22.3	31	2,383	- 8.5	66	192	8.4	5	2,438	- 1.6				31	2,434	- 6.1	62	319	8.0	31	2,466		54	235	12.6
700----	31	3,087	3.0	45	267	26.6	31	2,918	-11.8	63	195	8.5	5	2,980	- 5.7				31	2,975	- 8.7	61	300	10.5	31	3,021	- 3.0	40	245	15.8
650----	31	3,684	- 2	42	268	33.2	31	3,478	-15.4	58	200	9.1	5	3,558	- 8.9				31	3,539	-11.4	54	292	14.2	31	3,597	- 5.2	39	251	19.2
600----	31	4,321	- 4.3	40	268	37.5	31	4,083	-19.5	53	209	8.7	5	4,175	-13.5				31	4,157	-14.9	50	290	18.5	31	4,227	-10.2	39	258	24.1
550----	31	4,929	- 8.4	35	268	41.6	31	4,718	-24.0	48	218	7.0	5	4,830	-17.9				31	4,808	-18.7	42	285	20.1	31	4,887	-14.6	39	258	29.7
500----	31	5,736	-13.4	38	264	45.5	31	5,413	-29.1	44	231	8.4	5	5,539	-22.5				31	5,514	-23.6	39	285	23.9	31	5,609	-19.4	37	258	35.8
450----	31	6,525	-18.7	39	265	47.4	31	6,147	-34.5	41	245	10.3	5	6,298	-28.4				31	6,267	-29.4		283	30.1	31	6,374	-25.1	39	257	39.6
400----	31	7,400	-25.4	40	264	54.4	31	6,973	-40.5		249	12.4	5	7,140	-34.7				31	7,106	-35.7		277	33.6	31	7,230	-31.4	41	259	46.6
350----	31	8,355	-32.5	41	269	55.4	31	7,872	-46.7		250	17.3	5	8,059	-41.9				31	8,022	-42.4		273	38.7	31	8,162	-38.0		263	55.6
300----	31	9,425	-40.3				31	8,881	-53.0		259	21.0	5	9,087	-49.6				31	9,048	-49.4		269	49.2	31	9,208	-45.2		263	70.9
250----	31	10,647	-48.7				31	10,044	-56.9		261	21.0	5	10,265	-55.1				31	10,226	-55.6		269	56.9	31	10,405	-52.5		265	80.8
200----	31	12,087	-56.7				31	11,461	-55.7		271	17.9		11,783	-55.6				31	11,741	-56.7		268	60.2	31	11,833	-54.4		266	86.5
150----	31	13,887	-62.4				31	13,304	-53.7		278	14.2	5	13,522	-55.0				31	12,491	-55.1		271	54.0	31	12,679	-57.2		267	84.1
125----	27	15,013	-66.1				31	14,475	-54.1		286	13.2	5	14,685					31	13,477	-54.6		268	49.9	30	13,659	-58.3		269	73.6
100----	24	16,346	-68.0				31	15,904	-55.1		288	10.5							30	14,644	-55.1		267	45.3	30	14,802	-60.3		267	64.9
80----	22	17,686	-69.0				31	17,329	-55.4		287	9.7							30	16,066	-56.3		267	35.6	29	16,191	-62.7		266	54.2
60----	20	19,422	-64.7				31	19,159	-56.4		289	9.3							30	17,486	-56.4		264	26.4	28	17,565	-63.4		260	38.3
40----	20	20,546	-60.8				30	20,317	-56.6		288	8.2							30	19,314	-55.9		263	19.8	28	19,344	-60.6		255	20.8
40----	18	21,952	-56.9				28	21,732	-57.0		284	8.1							30	20,479	-55.0		256	14.4	28	20,486	-58.5		251	12.0
30----	16	23,791	-52.9				25	23,550	-56.8		273	10.9							28	21,908	-53.9		264	11.1	28	21,997	-56.5		257	4.1
25----	16	24,976	-49.8				25	24,707	-56.3		274	13.4							20	23,767	-52.5		289	9.7	27	23,735	-53.8		162	1.2
20----	8	26,455	-46.9				22	26,120	-55.8		270	15.0							8	24,953	-51.9				20	24,921	-51.6		292	2.9
15----							15	27,956	-54.9		268	25.1													8	26,383	-49.0			
10----							7	30,546	-52.2																					

WASHINGTON, D. C. (1004 MB.)										WINNEMUCCA, NEV. (864 MB.)										YAKUTAT, ALASKA (1014 MB.)										YUCCA FLAT, NEV. (876 MB.)									
SURFACE	31	88	1.7	78	330	4.1	31	1,310	-1.7	80	93	1.0	31	12	-2.2	79	78	2.7	31	1,196	1.8	71	231	1.7															
1,000---	31	121			340	3.5	31	124					31	121		4	69	85	3.9	31	110																		
950----	31	533	5.7	67	335	10.3	31	538					31	533	-	57	92	5.4	31	531																			
900----	31	967	-1.5	68	332	12.2	31	979					31	964	-3.4	58	91	3.9	31	971																			
850----	31	1,421	-2.9	66	326	13.2	31	1,436	.6	67	29	1.7	31	1,414	-6.3	56	93	2.1	31	1,436	3.6	58	216	1.9															
800----	31	1,901	-4.4	59	315	14.8	31	1,921	-1.8	61	207	3.5	31	1,886	-8.8	53	278	.8	31	1,926	.4	58	183	5.1															
750----	31	2,408	-6.2	57	302	16.9	31	2,427	-5.5	63	217	6.6	31	2,387	-11.7	49	297	2.1	31	2,441	-3.2	61	192	7.2															
700----	31	2,946	-8.3	55	291	19.8	31	2,969	-9.4	65	233	10.1	31	2,910	-14.5	43	299	2.9	31	2,985	-6.5	56	223	8.5															
650----	31	3,516	-11.1	52	288	23.5	31	3,532	-13.1	58	242	14.4	31	3,472	-17.4	42	310	6.2	31	3,559	-9.9	50	246	10.9															
600----	31	4,130	-14.8	47	286	26.4	31	4,144	-16.9	55	243	15.7	31	4,066	-20.4	43	316	8.5	31	4,174	-13.8	42	259	15.7															
550----	31	4,781	-19.0	43	284	29.7	31	4,786	-21.3	51	247	17.1	31	4,708	-23.9	41	311	11.9	31	4,827	-18.3	40	263	17.3															
500----	31	5,488	-23.5	42	279	35.2	31	5,488	-26.3	47	247	16.5	31	5,397	-28.2	43	308	14.8	31	5,536	-23.4	39	269	22.9															
450----	31	6,244	-28.9	40	280	40.6	31	6,233	-31.8	45	252	17.9	31	6,140	-33.3	44	319	17.3	31	6,292	-28.8	38	269	29.0															
400----	31	7,084	-35.1	37	278	47.6	30	7,068	-37.3	44	260	22.7	31	6,965	-39.0		322	23.1	31	7,134	-35.0		270	31.5															
350----	31	8,003	-42.8		276	54.0	30	7,977	-44.1		261	26.6	31	7,868	-45.5		308	23.3	31	8,055	-42.0		270	35.9															
300----	31	9,035	-47.8		270	54.4	30	8,994	-51.9		266	31.9	31	8,880	-52.5		305	24.9	31	9,079	-49.5		271	41.6															
250----	31	10,224	-52.7		269	67.8	29	10,159	-57.6		277	33.0	31	10,041	-58.1		295	21.8	31	10,257	-55.7		275	48.8															
200----	31	11,655	-54.6		266	63.1	29	11,566	-57.3		275	30.1	31	11,451	-56.6		280	14.6	31	11,669	-57.3		272	50.7															
175----	31	12,511	-54.0		268	60.8	29	12,413	-55.9		275	31.1	31	12,304	-54.4		282	13.4	31	12,516	-56.0		271	55.6															
150----	31	13,502	-53.9		268	50.5	29	13,397	-54.7		275	28.8	31	13,295	-53.1		294	16.1	31	13,498	-55.4		273	58.2															
125----	31	14,671	-55.0		265	45.5	29	14,562	-55.4		275	26.2	31	14,472	-52.7		309	16.5	31	14,658	-56.8		276	46.2															
100----	31	16,092	-56.6		267	34.8	29	15,984	-55.8		275	25.3	31	15,911	-53.1		314	11.1	29	16,065	-57.5		271	39.8															
80----	31	17,507	-56.5		267	25.1	28	17,405	-56.7		275	22.2	31	17,349	-53.4				29	17,472	-58.2		270	27.6															
60----	31	19,335	-56.2		268	16.1	24	19,231	-56.4		264	19.4	31	19,198	-54.6				29	19,285	-57.6		259	19.4															
50----	31	20,496	-55.5		280	9.5	21	20,384	-56.1		258	18.7	30	20,361	-55.1				29	20,440	-56.5		252	15.5															
40----	31	21,924	-54.2		301	5.1	17	21,813	-55.1		255	20.0	30	21,780	-56.7				26	21,861	-54.6		250	14.0															
30----	31	23,778	-52.2		307	8	13	23,598	-54.6		256	23.9	28	23,022	-57.8				16	23,912	-57.8		254	15.9															
25----	31	24,964	-50.7		317	6.6	11	24,822	-53.7				23	24,750	-58.3				8	24,906	-51.7																		
20----	31	26,424	-48.4		304	9.5	7	26,249	-53.5				18	26,158	-59.1																								
15----	31	28,329	-45.1		281	11.5							13	27,952	-59.9																								
10----	31	31,174	-38.4																																				

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 10 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been

computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element

These average values for standard pressure surfaces were obtained by rawinsondes: dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

MARCH 1958

Date	Sun's zenith distance								
	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
BLUE HILL, MASS.									
	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Mar. 6-----	---	---	---	---	---	1.18	0.98	0.84	0.73
8-----	0.90	0.99	1.13	1.28	---	---	---	---	---
9-----	.88	.98	1.11	1.27	1.31	1.20	1.04	.93	---
11-----	.88	1.00	1.12	1.28	1.40	1.28	1.12	1.01	.92
13-----	.89	.99	1.13	1.28	---	---	---	---	---
18-----	.88	1.02	1.16	1.33	---	---	---	---	---
29-----	---	---	---	---	---	1.28	1.13	.97	.86
Aver-ages	.88	.98	1.13	1.29	1.36	1.24	1.07	.94	.84
ALBUQUERQUE, N. MEX.									
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Mar. 1-----	---	---	---	---	Cloudy	---	---	---	---
2-----	0.88	1.03	1.15	1.34	1.47	---	1.14	---	---
3-14-----	---	---	---	---	Cloudy	---	---	---	---
15-----	.98	1.07	1.20	1.36	---	---	---	---	---
16-28-----	---	---	---	---	Cloudy	---	---	---	---
29-----	---	---	1.18	1.36	---	---	---	---	---
30-----	---	---	---	---	Cloudy	---	---	---	---
Aver-ages	.91	1.03	1.16	1.35	1.47	---	1.14	---	---
WASHINGTON, D. C. (WBCO)									
	Air mass								
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
Mar. 4-----	0.58	0.71	0.83	---	---	---	---	---	---
7-----	.70	.83	.95	---	---	---	---	---	---
8-----	.93	1.04	1.17	1.32	1.46	1.29	1.11	0.95	0.83
9-----	.83	.94	1.05	---	---	---	---	---	---
23-----	.66	1.01	1.13	1.29	---	---	---	---	---
28-----	.84	.93	1.03	1.23	---	---	---	---	---
Aver-ages	.76	.91	1.03	1.28	1.46	1.29	1.11	.95	.83
* Values corresponding to true solar noon. S Slight haze - indeterminate.									

* Values corresponding to true solar noon.

S Slight haze - indeterminable.

Note: Omaha data for January and February 1958 are in error - corrected data will appear in June issue of this publication. All Omaha data for July 1 - December 31, 1957 should be multiplied by 0.98 to conform to international scale of pyrheliometry (1956).

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station

Date	Sun's zenith distance								
	A M				*	P M			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
LINCOLN, NEBR.									
Air mass									
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Mar. 15-----	0.77	0.88	0.99	1.13	----	----	----	----	----
19-----	.68	.78	.90	1.08	----	1.05	0.89	0.78	0.66
20-----	.75	.84	.98	1.14	1.28	----	----	.86	.78
24-----	.79	.85	.99	1.15	1.22	----	----	----	----
Aver-ages	.75	.84	.97	1.13	1.25	1.05	.89	.82	.72
OMAHA, NEBR.									
Air mass									
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Mar. 4-----	S0.87	S0.96	S1.11	S1.28	----	----	----	----	----
15-----	S.87	S.97	S1.07	----	----	----	----	----	----
19-----	----	S.91	S1.03	----	S1.37	----	----	----	----
20-----	S.83	S.96	S1.08	S1.25	----	----	----	----	----
24-----	----	S1.01	S1.14	S1.30	S1.40	S1.19	----	----	----
Aver-ages	.86	.96	1.09	1.28	1.39	1.19	----	----	----
MAUNA LOA OBS., HAWAII									
Air mass									
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Mar. 1-----	1.32	1.41	1.50	1.62	1.73	1.58	1.46	1.35	1.24
2-----	1.25	1.36	1.45	1.57	1.69	1.54	1.41	1.31	1.21
3-----	1.28	1.37	1.46	1.58	----	----	----	----	----
5-----	----	----	----	----	1.67	----	----	----	----
8-----	1.31	1.38	1.48	1.59	1.71	1.54	1.38	1.25	1.13
11-----	1.28	1.35	1.45	1.56	----	1.52	----	----	----
12-----	1.32	1.39	1.48	1.59	1.71	1.55	1.43	1.33	1.25
13-----	1.33	1.41	1.50	1.61	1.72	1.53	1.43	1.32	1.23
14-----	----	----	----	1.58	1.69	1.52	1.38	1.27	1.17
15-----	----	----	----	1.58	1.69	1.56	1.43	1.34	1.26
16-----	1.29	1.37	1.46	1.57	1.71	1.55	1.43	1.30	1.27
17-----	1.27	1.36	1.45	1.57	1.71	1.56	1.42	1.33	1.25
18-----	1.27	1.35	----	----	1.73	1.57	1.47	----	----
30-----	----	----	----	----	----	1.54	1.42	1.31	1.21
31-----	1.19	1.28	1.39	1.53	1.67	1.49	1.34	----	----
Aver-ages	1.28	1.37	1.46	1.58	1.70	1.54	1.42	1.31	1.22

listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

MARCH 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

								Avg									Avg									Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25			
Langleys-----	293	457	119	484	513	266	521	379	499	457	5	84	94	138	492	253	331	45	---	50	74	417	131	(175)		
Date-----	26	27	28	29	30	31	1																			
Langleys-----	102	45	470	476	377	50	6	218																		

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg									Avg									Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25			
Langleys-----	158	129	177	111	69	153	60	122	90	107	21	124	160	181	130	116	215	108	83	91	152	194	197	149		
Date-----	26	27	28	29	30	31	1																			
Langleys-----	177	115	147	89	193	133	25	126																		

Note: Langley is the unit used to denote one gram calorie per square centimeter.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

MARCH 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	181	28	105	161	159	94	95	206	*-25	257	169	203	*-30	*102	81	172	157	*-27	*6	160	104	217	238	51	*5	*29	*24	279	170	*112	*116	116

Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

MARCH 1958

	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N. C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Grand Lake, Colo.	
1958																															
Mar. 5-----	542	325	172	218	253	80	100	469	263	149	275	134	---	564	412	306	281	59	---	298	159	371	481	177	79	447	496	324	480	578	
Mar. 6-----	206	18	101	249	322	130	179	404	401	408	376	228	---	413	378	127	76	278	---	---	50	105	275	225	---	56	237	83	265	336	624
Mar. 7-----	---	253	266	191	45	88	220	305	194	424	174	378	---	376	238	67	343	18	---	286	325	329	470	207	508	469	363	238	408	385	
Mar. 8-----	522	327	291	157	288	144	142	106	442	414	405	439	---	597	233	342	463	36	189	254	436	588	208	203	447	328	272	---	395	535	
Mar. 9-----	424	196	615	235	415	144	155	273	454	436	425	538	---	89	316	262	133	294	300	151	104	593	423	204	289	468	509	---	219	282	
Mar. 10-----	596	137	609	371	525	151	190	397	304	445	280	397	---	176	241	467	367	163	431	243	160	566	543	156	392	259	520	---	478	617	
Mar. 11-----	270	375	387	387	410	165	144	476	481	319	446	87	---	577	156	485	176	253	459	462	116	286	381	161	242	399	225	---	267	518	
Average-----	427	233	349	258	323	129	161	347	363	371	340	314	---	399	282	294	263	157	345	249	200	430	390	185	288	373	353	---	369	506	
Mar. 12-----	247	378	59	233	413	107	268	503	462	332	435	136	(558)	580	169	347	288	247	321	270	460	410	392	170	78	225	68	---	196	569	
Mar. 13-----	500	373	213	126	166	90	175	500	445	262	418	359	659	86	327	159	158	303	215	481	382	282	418	219	268	318	245	---	375	546	
Mar. 14-----	527	384	604	345	431	121	287	339	28	395	16	537	571	217	181	495	270	156	372	(406)	128	548	205	165	570	140	558	---	330	---	
Mar. 15-----	556	340	615	394	593	161	308	331	139	104	131	354	663	560	111	561	224	301	335	295	177	598	249	253	490	71	625	---	128	---	
Mar. 16-----	206	353	610	362	602	182	181	(296)	172	455	177	237	567	543	190	571	200	334	306	114	188	550	456	262	416	207	606	---	169	---	
Mar. 17-----	343	407	390	232	148	207	145	297	208	304	184	205	406	491	368	483	181	196	293	395	152	296	427	256	214	421	492	---	490	---	
Mar. 18-----	---	260	154	317	132	140	211	463	474	350	439	93	542	85	510	90	298	170	357	333	254	616	552	177	246	504	165	---	444	---	
Average-----	396	356	378	287	355	144	225	(390)	275	315	257	274	(567)	366	265	387	231	244	314	(328)	249	471	385	214	326	269	394	---	305	---	
Mar. 19-----	572	419	230	171	425	101	170	509	381	455	412	458	482	148	511	101	252	277	277	616	218	614	542	(245)	589	506	122	---	557	---	
Mar. 20-----	599	376	651	112	449	213	182	513	118	166	130	578	365	361	496	452	396	344	184	598	170	543	238	---	564	59	637	---	451	---	
Mar. 21-----	540	142	655	265	329	226	218	350	83	302	83	436	673	583	245	403	199	512	334	364	224	555	351	275	438	144	631	---	313	---	
Mar. 22-----	168	298	620	224	522	227	260	179	105	264	76	311	678	590	176	585	532	192	306	84	521	350	209	212	194	523	605	---	353	---	
Mar. 23-----	520	259	555	284	485	240	299	162	152	351	175	535	618	680	299	509	545	78	251	71	537	644	338	280	243	415	532	---	290	---	
Mar. 24-----	360	339	449	223	57	274	304	225	484	240	391	349	627	487	476	151	177	47	172	558	248	276	373	252	216	414	132	---	265	---	
Mar. 25-----	516	54	440	250	95	---	---	458	235	200	171	417	643	111	227	381	120	161	397	447	431	637	549	---	122	497	181	---	370	---	
Average-----	468	270	514	215	338	213	239	342	223	282	205	441	584	423	347	369	317	230	274	391	336	517	371	(253)	338	366	406	---	372	---	
Mar. 26-----	626	350	456	509	126	272	430	368	199	541	267	613	653	177	416	83	202	548	471	162	545	364	614	271	542	442	418	---	481	---	
Mar. 27-----	634	425	372	389	127	260	341	218	121	434	155	331	624	240	447	210	413	241	472	348	222	654	326	314	134	172	402	---	556	---	
Mar. 28-----	414	348	641	339	378	285	---	274	561	436	529	420	546	541	568	522	447	535	326	135	305	651	452	348	387	418	557	---	216	---	
Mar. 29-----	496	377	560	104	400	311	205	301	580	245	551	317	458	670	572	451	483	28	142	90	466	614	348	353	627	429	676	---	332	---	
Mar. 30-----	657	471	199	288	129	336	227	481	484	113	452	557	(523)	441	553	100	244	163	401	244	535	656	419	324	330	310	286	---	370	---	
Mar. 31-----	612	392	555	193	388	296	245	411	157	321	135	506	598	155	150	401	580	459	213	429	581	667	651	279	616	389	488	---	194	---	
Apr. 1-----	614	473	541	106	498	314	307	218	39	246	63	363	523	224	495	599	577	207	375	659	568	668	320	231	488	582	---	335	---		
Average-----	579	405	475	275	292	296	293	324	306	334	307	444	(561)	350	457	338	421	312	343	295	460	611	447	303	446	335	487	---	355	---	

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. - Cont'd. MARCH 1958

1958	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Portland, Me.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	
Mar. 5-----	190	401	456	155	565	203	71	359	517	528	284	106	487	499	---	163	141	372	144	326	---	---	315	333	222	247	450	357	527	268
Mar. 6-----	242	225	91	316	185	78	99	446	480	142	143	43	215	100	---	401	328	220	145	399	---	---	264	109	104	434	230	500	71	413
Mar. 7-----	425	259	50	113	598	346	386	479	245	320	67	121	393	406	---	78	402	---	50	362	---	---	77	215	138	374	264	215	458	391
Mar. 8-----	---	409	196	334	578	163	280	324	454	540	40	91	480	422	---	225	384	550	105	445	---	---	70	215	152	356	474	135	458	286
Mar. 9-----	---	46	405	262	621	253	490	219	287	577	352	89	491	515	---	379	341	554	55	453	---	---	369	174	152	402	49	76	560	354
Mar. 10-----	---	402	438	58	466	443	533	512	419	555	257	193	424	433	---	397	349	437	143	250	---	---	248	188	122	297	469	398	476	426
Mar. 11-----	(186)	316	407	159	432	173	525	374	533	191	218	194	427	332	60	409	367	229	201	463	---	---	252	383	289	470	388	545	459	460
Average-----	(261)	294	292	200	492	237	341	388	419	407	194	120	417	387	---	293	359	394	121	385	---	---	228	226	212	369	332	318	430	371
Mar. 12-----	201	478	302	472	434	94	141	401	489	451	318	48	372	382	160	285	291	188	438	480	---	---	385	461	292	359	506	347	254	461
Mar. 13-----	303	46	188	96	545	311	510	568	473	547	475	82	370	212	189	291	335	473	46	434	---	---	448	66	292	350	51	251	426	300
Mar. 14-----	389	379	530	156	516	138	557	583	478	442	488	469	199	156	171	352	315	568	240	39	---	---	307	121	598	73	240	383	458	209
Mar. 15-----	394	368	541	140	177	104	560	389	500	278	516	339	49	66	309	426	523	563	298	173	---	---	385	227	171	143	348	569	102	152
Mar. 16-----	481	345	533	173	652	81	466	338	338	553	153	214	461	409	298	344	608	477	540	284	---	---	162	517	178	243	454	276	423	268
Mar. 17-----	393	217	167	246	644	170	165	611	551	408	221	32	407	300	302	375	568	241	45	266	---	---	124	93	203	196	350	418	443	280
Mar. 18-----	492	49	221	289	577	250	408	588	525	583	244	494	522	359	267	464	458	446	114	271	---	---	276	168	452	437	53	460	578	351
Average-----	379	269	355	225	507	164	401	497	479	466	345	240	340	269	242	362	443	422	246	278	---	---	298	236	312	257	286	386	383	289
Mar. 19-----	476	61	368	257	653	207	592	583	510	583	538	481	505	497	288	349	226	452	403	385	---	---	469	221	608	504	73	469	579	335
Mar. 20-----	289	342	488	285	139	95	---	454	518	332	556	527	63	99	188	236	314	592	359	44	---	---	(530)	293	513	217	390	199	237	530
Mar. 21-----	279	318	363	253	428	97	541	527	332	578	403	360	278	244	334	240	657	522	338	104	---	---	463	339	466	101	339	293	387	530
Mar. 22-----	338	561	447	460	682	283	400	547	473	485	147	113	555	503	164	306	490	182	202	198	---	---	175	587	216	200	575	330	510	538
Mar. 23-----	333	464	474	390	582	543	226	290	520	429	456	---	278	323	240	282	546	595	174	207	---	---	437	93	94	276	555	202	477	454
Mar. 24-----	97	147	108	30	685	463	236	417	365	586	554	---	524	403	216	461	119	183	49	379	---	---	535	60	596	528	163	312	394	515
Mar. 25-----	202	77	140	125	689	116	156	446	276	542	541	---	446	429	322	320	463	225	101	205	---	---	514	144	143	215	65	261	475	538
Average-----	288	281	341	257	551	258	359	466	428	505	456	328	378	357	250	313	402	393	232	217	---	---	(446)	248	377	291	309	(346)	432	450
Mar. 26-----	187	93	89	179	651	130	199	406	302	621	542	---	412	454	363	455	218	471	50	92	---	---	514	115	474	511	83	63	551	529
Mar. 27-----	424	107	147	123	206	509	600	464	552	312	363	---	279	251	328	528	464	585	256	103	---	---	392	172	394	479	81	160	150	460
Mar. 28-----	398	405	335	106	645	578	496	505	259	470	235	518	410	267	368	348	645	360	437	548	---	---	202	102	261	553	500	142	531	548
Mar. 29-----	440	289	442	386	697	571	378	513	426	617	198	344	580	542	279	182	574	532	209	---	---	583	259	432	369	591	361	280	543	536
Mar. 30-----	225	63	111	272	586	375	618	561	554	588	463	96	435	301	182	329	248	620	61	477	---	---	391	390	95	551	223	544	456	400
Mar. 31-----	576	245	355	554	715	143	591	305	232	512	533	548	397	267	254	321	446	577	317	134	62	497	284	650	160	191	493	204	461	
Apr. 1-----	486	584	512	553	97	511	359	439	537	301	415	430	133	139	172	364	656	641	592	104	281	233	589	611	88	543	595	100	177	
Average-----	391	255	284	310	514	403	463	456	409	489	393	387	378	317	278	361	464	541	275	243	329	355	256	421	419	283	325	362	444	

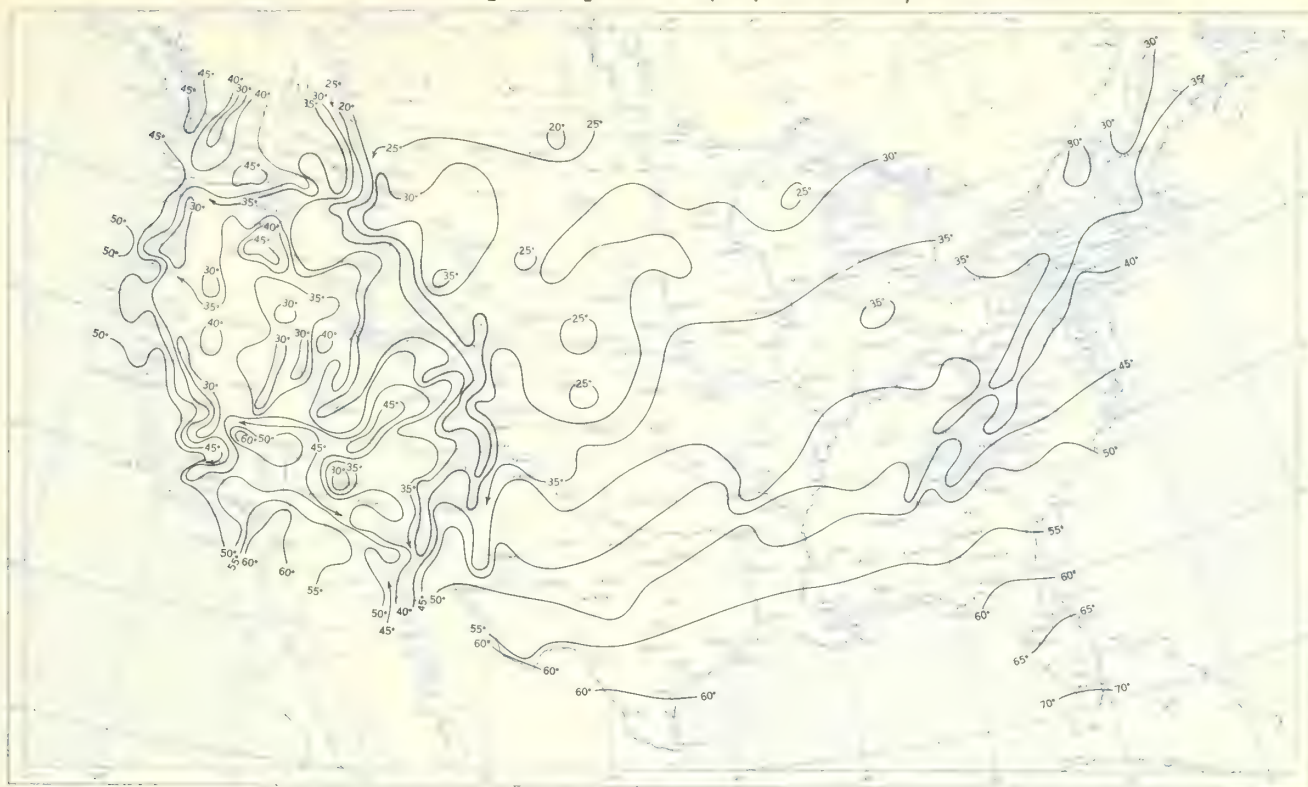
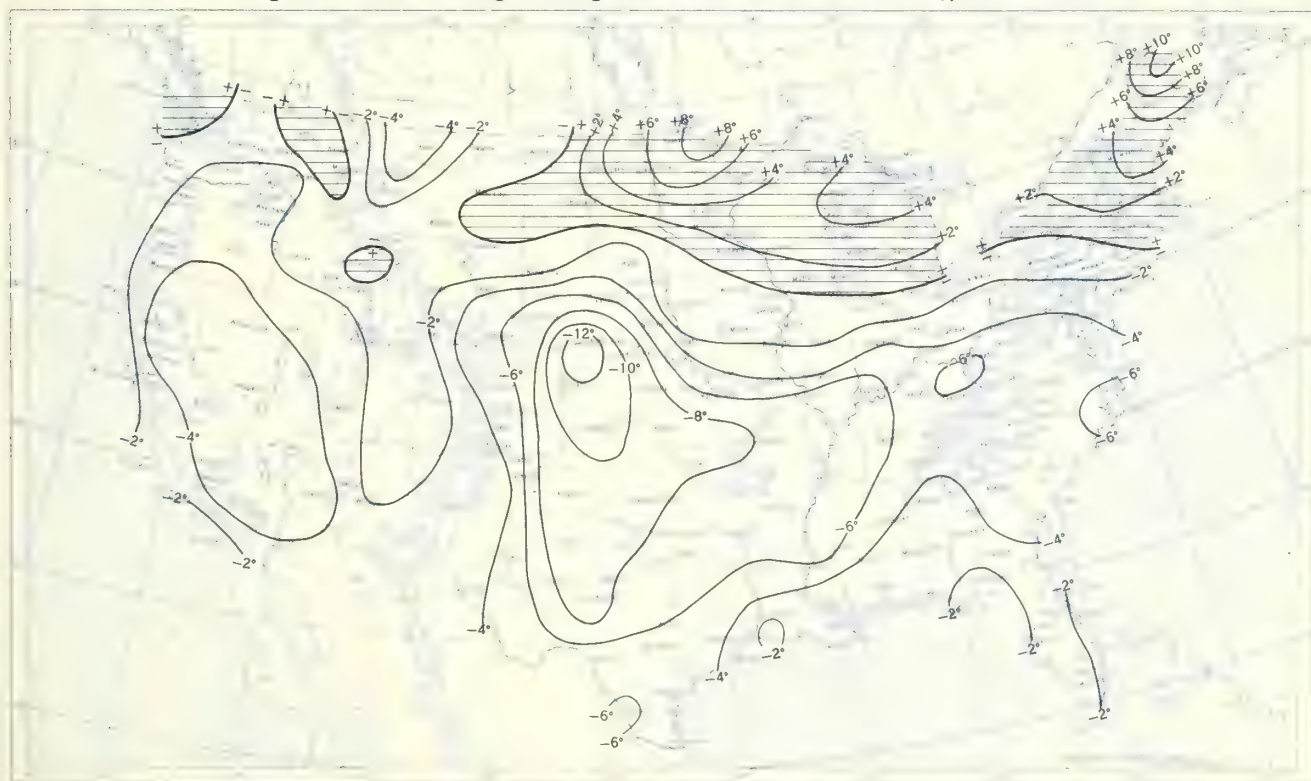
Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's. - Cont'd. MARCH 1958

1958	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Saville, N. Y.	Schenectady, N. Y.	Seattle, Wash. (U. of W.)	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Swan Island, W. I.	Tampa, Fla.	Wake Island Pacific Area	Washington, D. C. (Silver Hill Obs.)	AKlavik, Mackenzie	Dartmouth, N. S.	Edmonton, Alberta	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Resolute, Mackenzie	Toronto, Ontario	Winnipeg, Manitoba
Mar. 5-----	86	472	242	426	294	266	289	130	176	176	688	276	545	315	135	193	135	213	199	212	78	177	228
Mar. 6-----	243	426	242	385	337	259	385	63	371	57	716	388	551	232	108	100	150	231	360	259	44	172	223
Mar. 7-----	534	503	481	520	367	49	92	512	195	461	714	502	513	471	103	143	161	242	358	199	50	435	332
Mar. 8-----	600	359	503	409	330	185	203	177	487	622	484	519	490	490	108	91	242	346	230	---	(92)	441	227
Mar. 9-----	504	506	500	497	375	359	340	520	383	249	685	279	571	214	116	275	226	167	345	---	(93)	270	185
Mar. 10-----	211	313	447	374	347	469	420	316	329	457	744	611	496	(445)	163	243	229	160	325	(437)	69	377	334
Mar. 11-----	252	403	338	500	330	443	368	341	401	131	723	168	527	223	143	93	274	157	213	410	102	203	387
Average-----	347	426	393	445	340	290	299	341	290	288	699	387	532	(341)	125	163	203	233	267	(343)	(75)	296	274
Mar. 12-----	250	361	158	521	215	422	302	46	357	143	671	102	(580)	430	59	200	295	269	177	286	75	130	395
Mar. 13-----	491	226	295	371	347	487	414	159	424	166	685	425	---	93	164	224	357	270	252	402	66	103	183
Mar. 14-----	574	157	317	39	43	518	390	597	372	124	767	496	(664)	144	197	324	356	111	359	120	(116)	76	220
Mar. 15-----	586	78	314	302	172	332	301	541	272	189	588	651	651	430	119	43	372	238	271	138	133	189	328
Mar. 16-----	309	380	300	329	325	582	406	408	531	233	692	659	568	338	166	96	363	355	368	245	82	150	317
Mar. 17-----	344	(345)	313	288	206	406	327	148	318	315	736	582	660	402	200	120	373	417	337	415	109	160	330
Mar. 18-----	172	592	216	472	264	474	326	213	256	271	780	242	536	193	159	278	376	421	443	377	146	276	396
Average-----	390	(306)	273	332	225	460	352	302	361	206	700	451	(610)	290	152	183	356	297	315	283	(104)	155	310
Mar. 19-----	---	585	396	144	277	248	165	626	281	78	702	302	678	36	234	473	346	393	446	352	156	53	344
Mar. 20-----	736	124	---	46	101	183	107	634	208	126	389	585	643	106	215	443	181	331	452	306	156	252	420
Mar. 21-----	470	414	444	165	152	370	220	593	189	260	---	489	669	271	154	106	203	428	395	210	(156)	421	459
Mar. 22-----	204	559	518	383	203	434	227	215	249	362	696	582	687	526	220	62	298	415	278	324	80	500	389
Mar. 23-----	614	296	(600)	519	201	546	309	177	374	573	---	614	627	586	221	108	85	258	305	381	127	512	306
Mar. 24-----	349	619	573	557	412	227	146	151	366	385	600	---	663	244	212	365	98	305	386	425	(222)	371	355
Mar. 25-----	181	511	(572)	255	99	---	274	95	290	54	680	206	697	92	172	131	134	233	412	466	190	304	446
Average-----	426	444	(517)	296	206	335	207	356	280	263	613	463	666	266	204	241	192	338	382	352	(155)	345	388
Mar. 26-----	524	567	470	84	326	---	436	177	304	65	458	322	721	44	135	227	135	405	428	509	(218)	505	(444)
Mar. 27-----	582	370	603	72	350	---	426	444	471	479	680	485	670	138	219	350	182	438	478	517	(209)	513	446
Mar. 28-----	161	---	362	637	463	---	352	448	232	529	---	533	708	565	236	362	136	315	480	448	234	501	256
Mar. 29-----	569	493	(596)	640	472	---	249	483	292	565	---	595	591	464	268	522	198	424	374	515	(228)	519	266
Mar. 30-----	647	424	(610)	456	291	---	223	541	419	99	715	142	720	169	312	548	104	416	480	---	189	397	386
Mar. 31-----	550	444	(623)	90	160	---	263	659	284	113	671	622	664	65	322	440	175	442	490	330	169	471	412
Apr. 1-----	99	219	(620)	341	170	---	347	593	302	461	677	580	(491)	489	194	177	359	498	490	468	199	493	55
Average-----	447	420	(556)	331	319	---	328	478	329	330	640	468	(652)	276	241	375	184	420	460	464	(207)	486	(324)

Note.---Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, March 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), March 1958.

A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), March 1958.

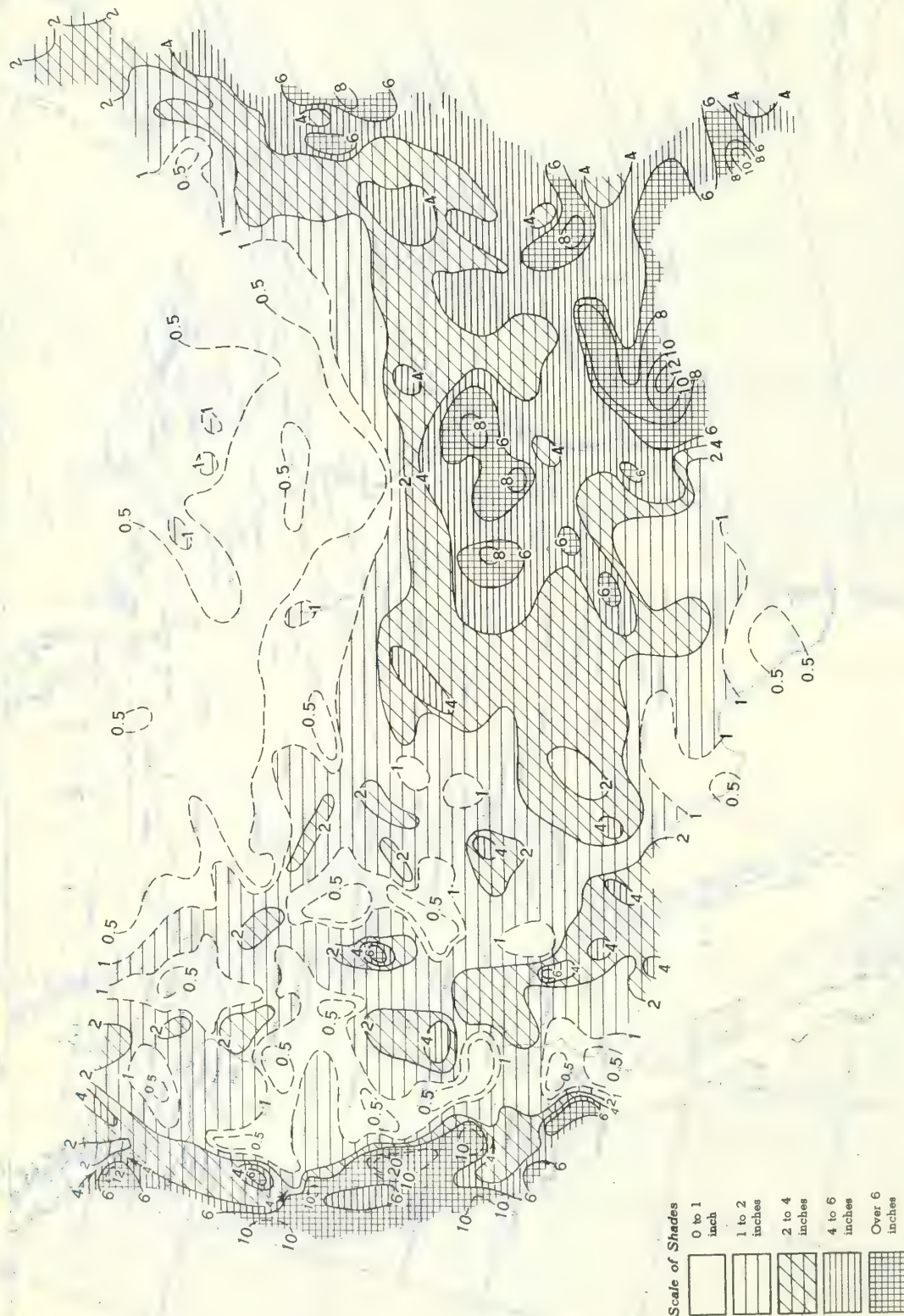


Chart III. A. Departure of Precipitation from Normal (Inches), March 1958.



B. Percentage of Normal Precipitation, March 1958.



Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), March 1958.

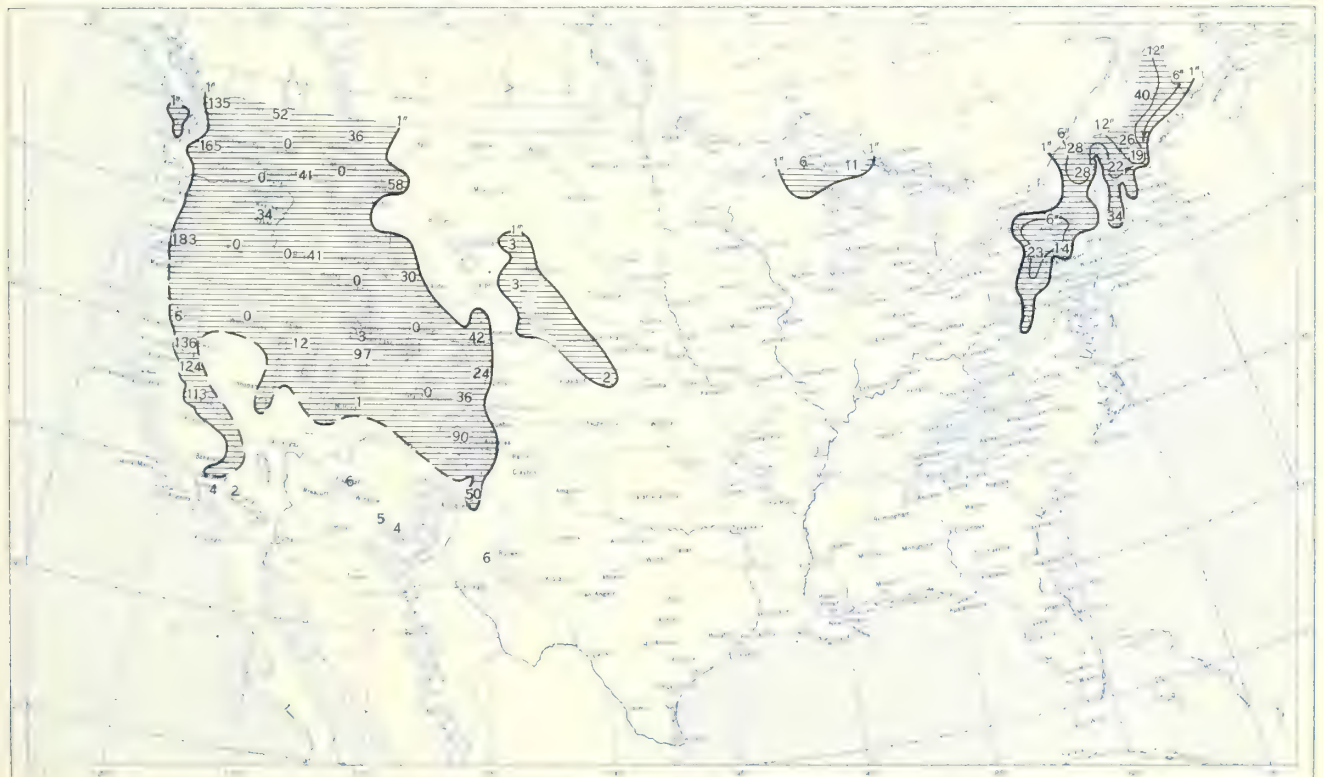


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, March 1958.

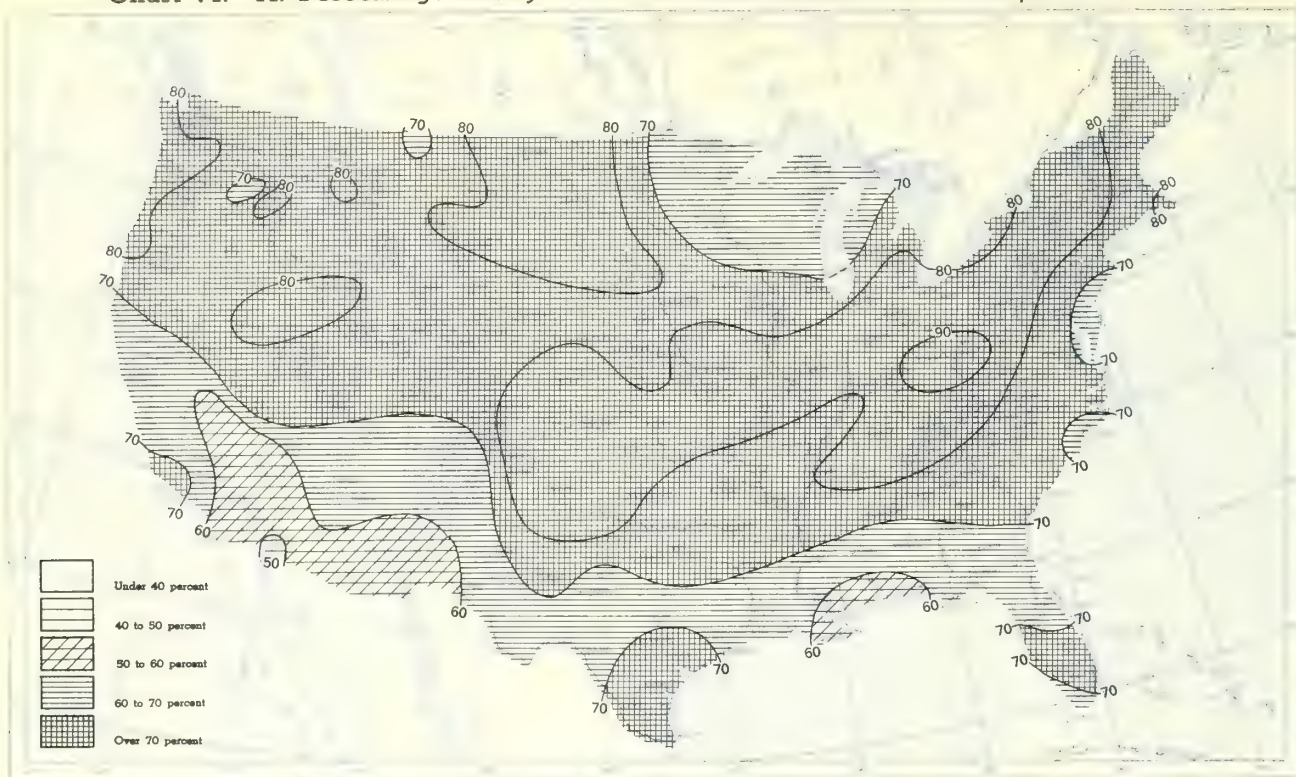


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., March 31, 1958.

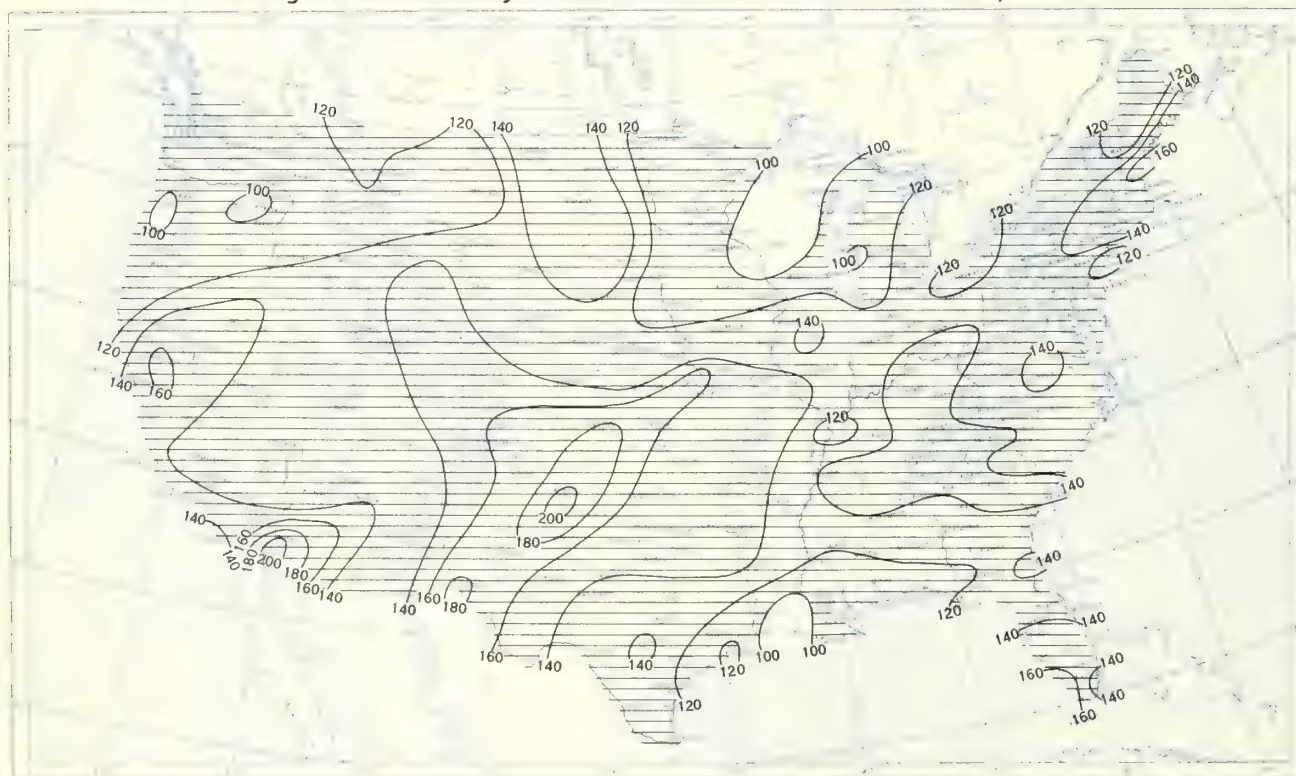


A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
 B. Shows depth currently on ground at 7:00 a. m. E. S. T., of the Monday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, March 1958.

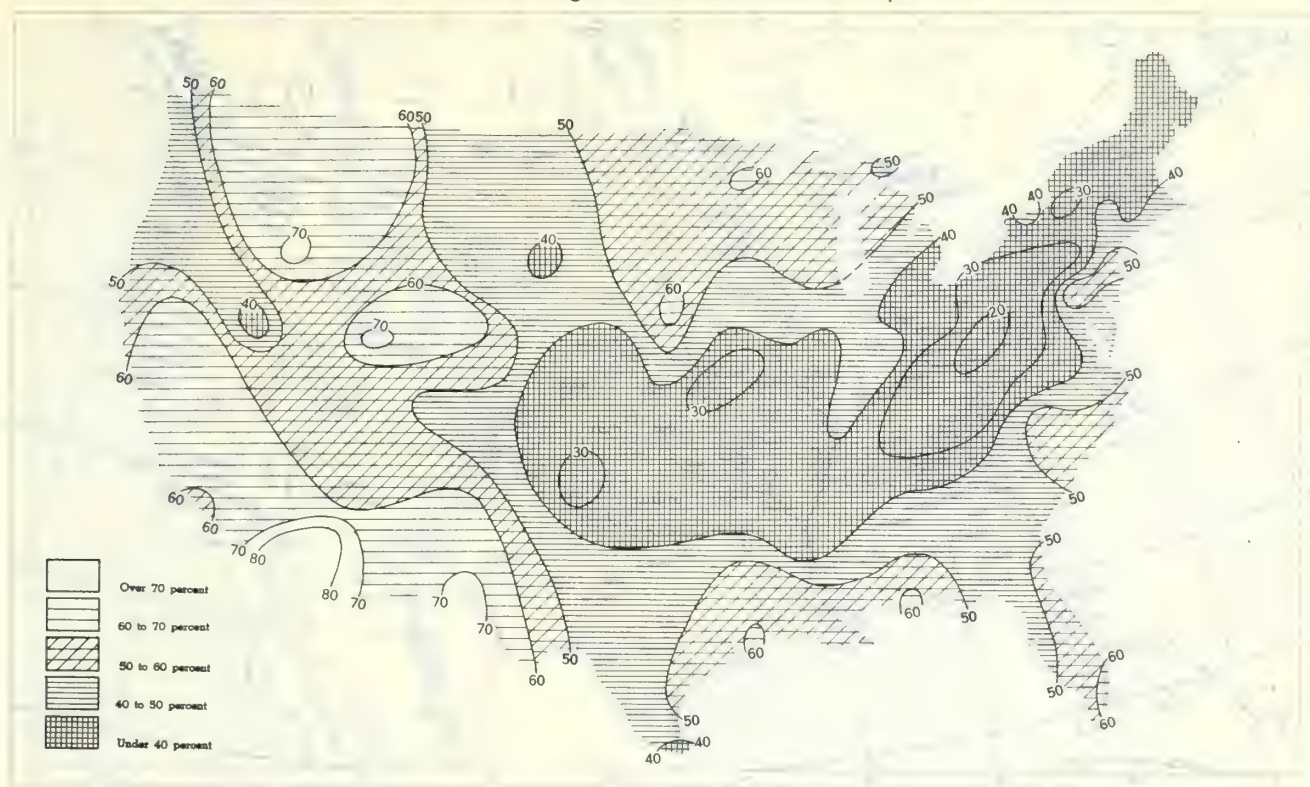


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, March 1958.

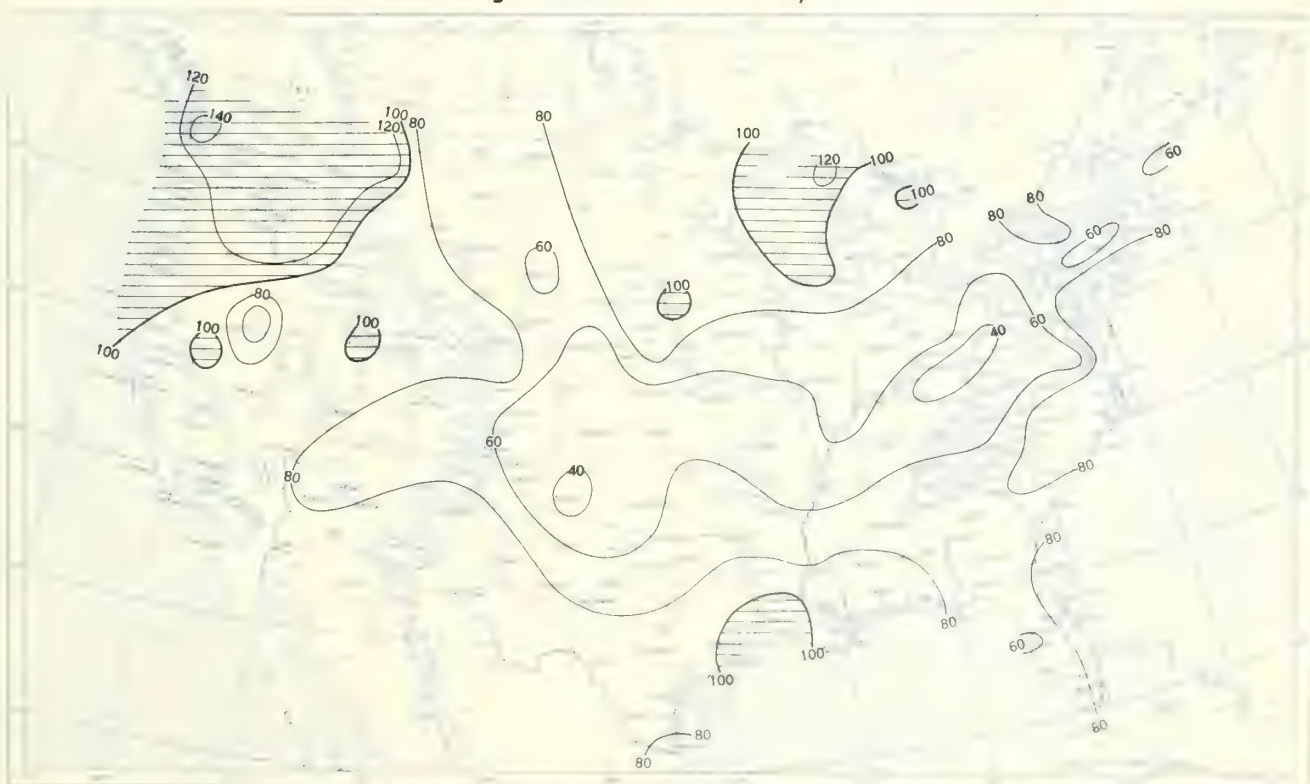


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, March 1958.



B. Percentage of Normal Sunshine, March 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, March 1958. Inset: Percentage of Mean Daily Solar Radiation, March 1958. (Mean based on period 1951-55.)

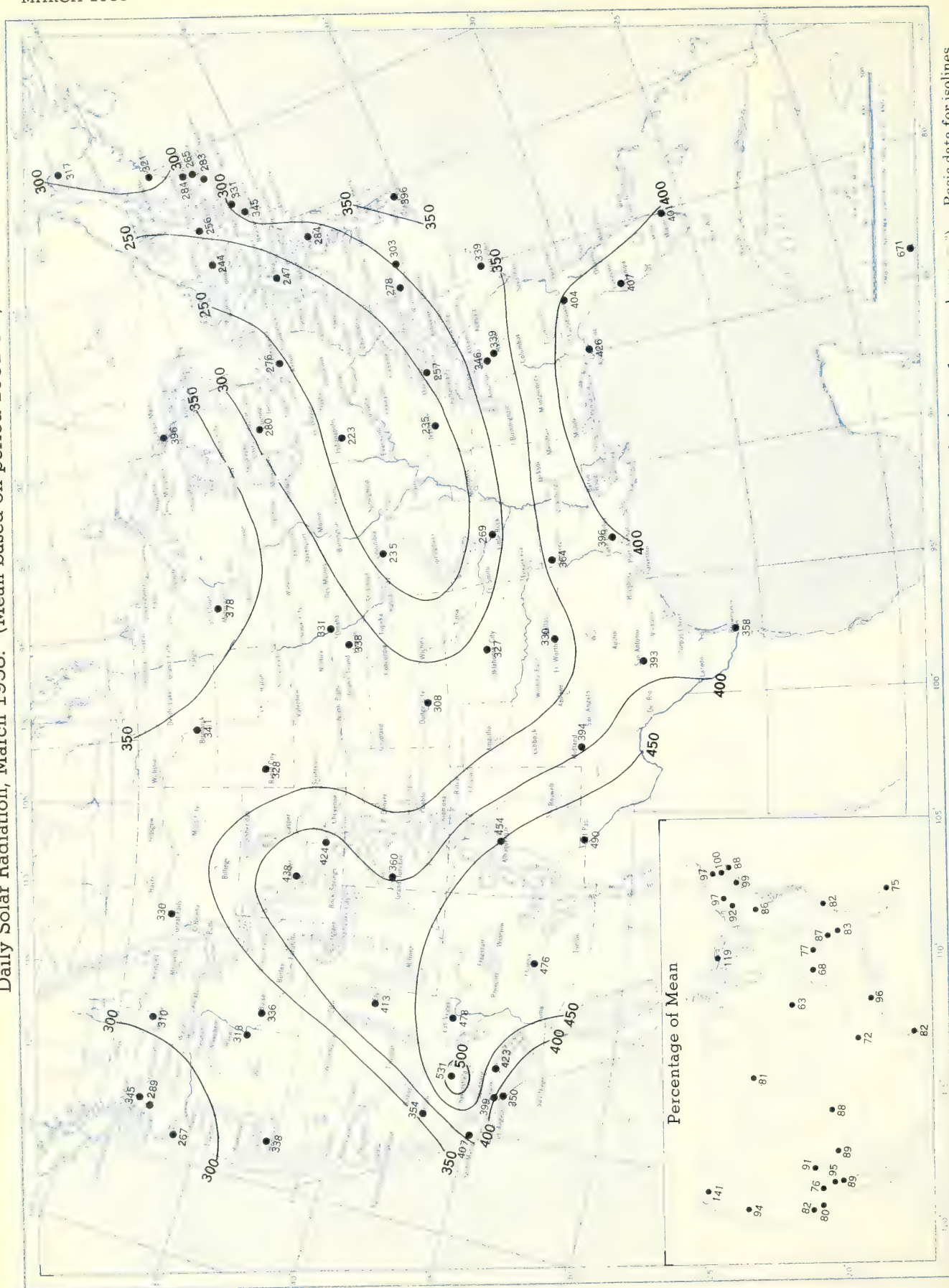


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleyes (1 langley = 1 gm. cal. cm.⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. The inset shows the percentage of the mean based on the period 1951-55.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, March 1958

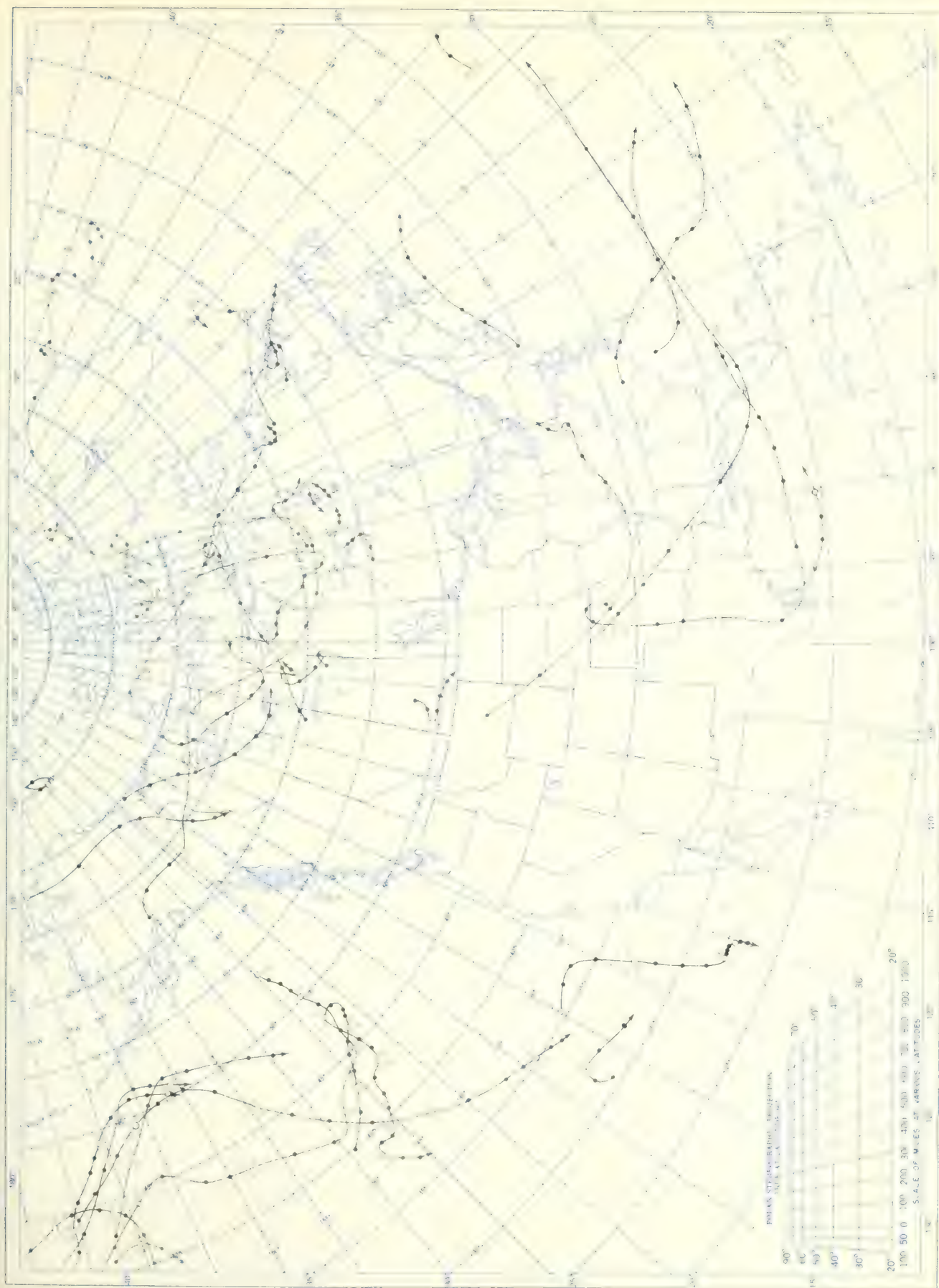
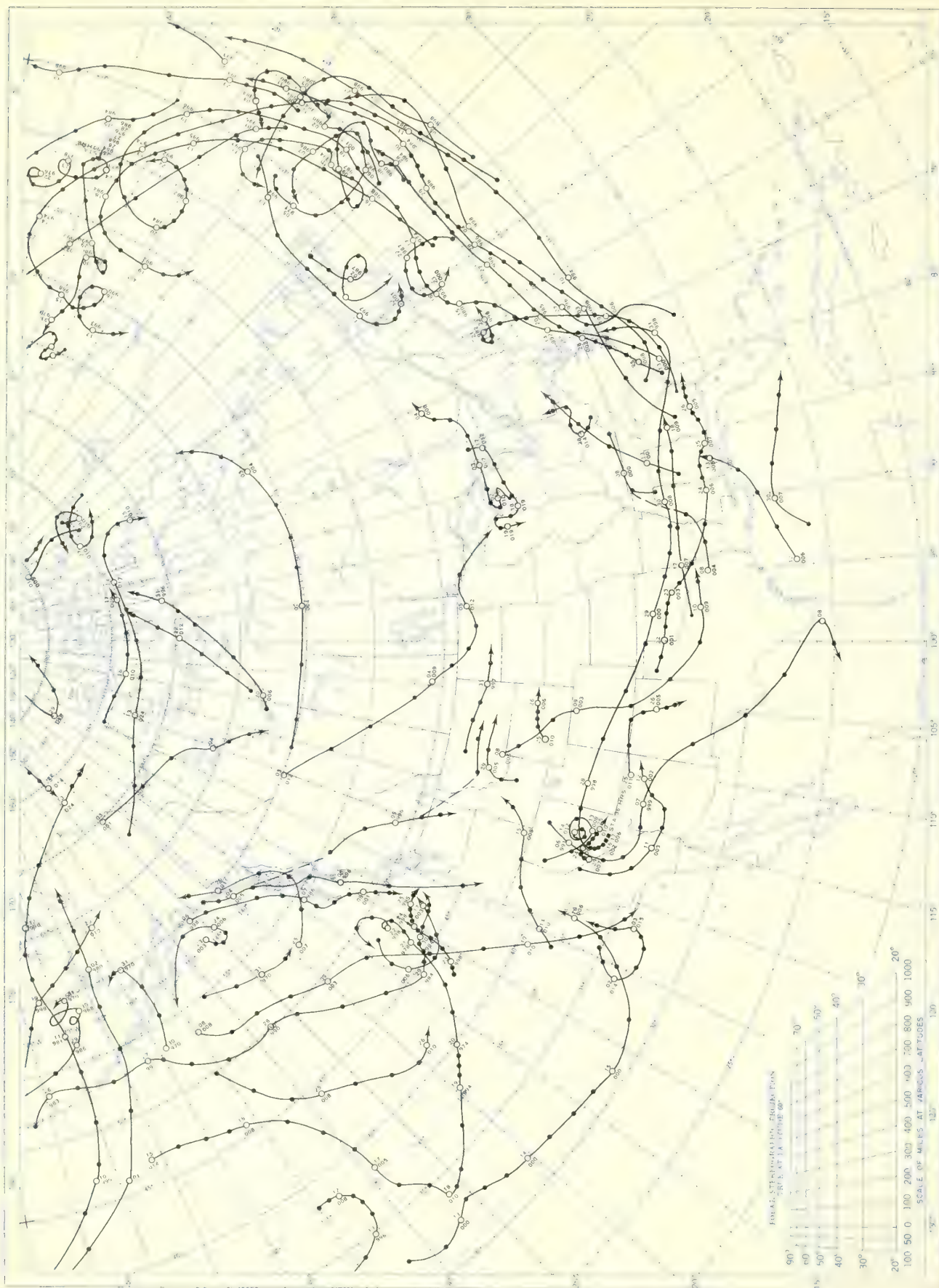
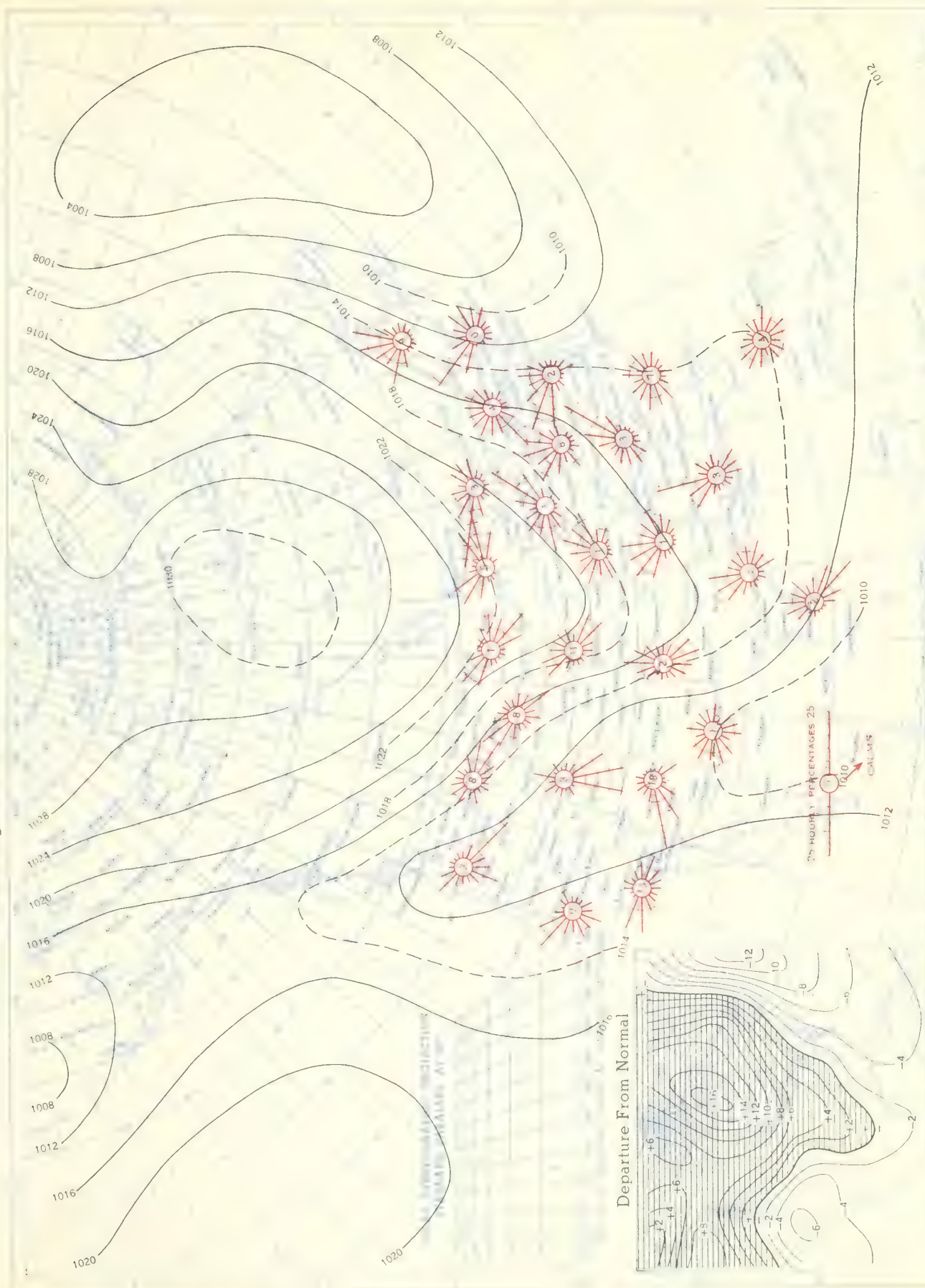


Chart X. Tracks of Centers of Cyclones at Sea Level, March 1958.



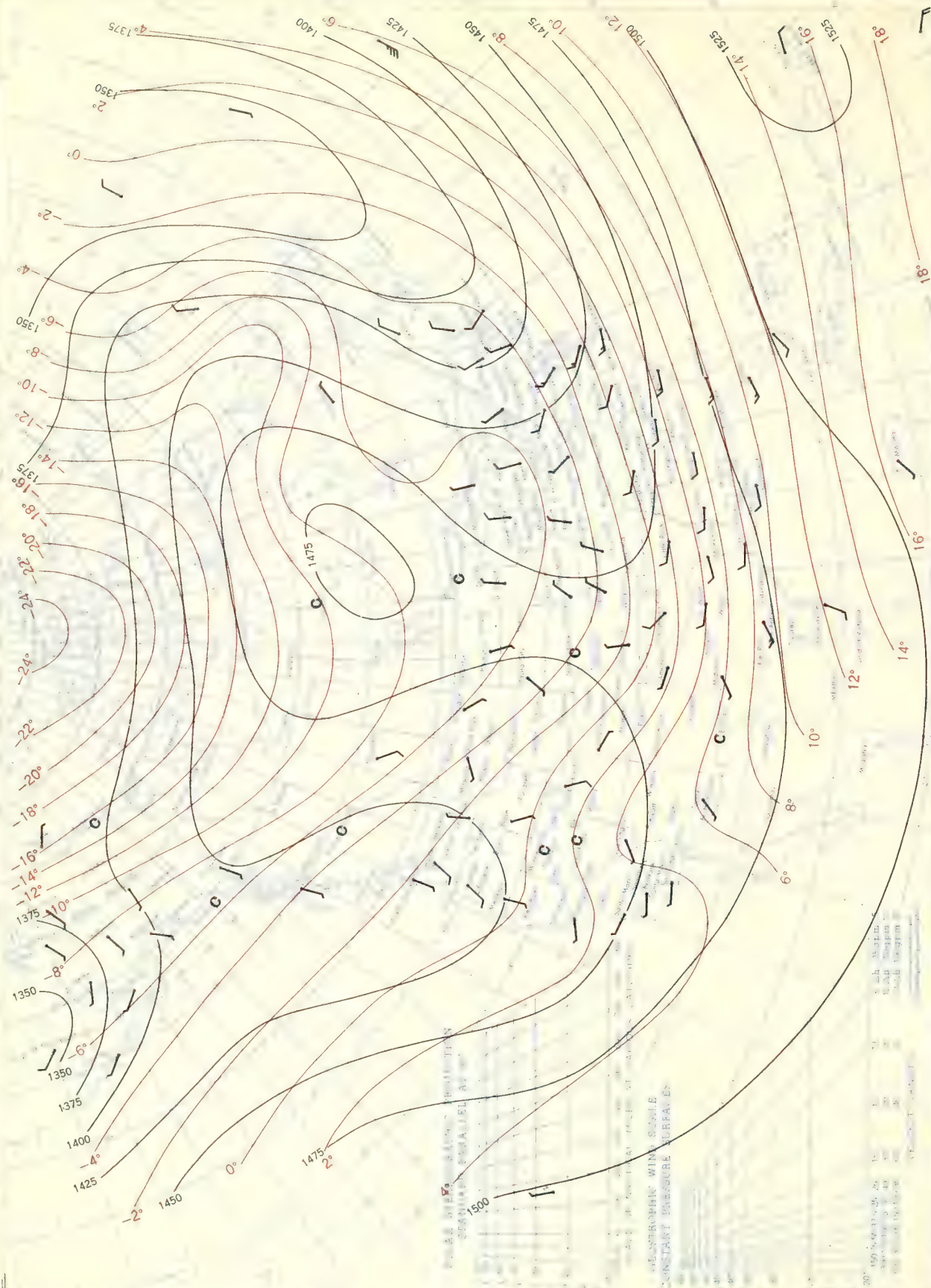
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, March 1958. Inset: Departure of Average Pressure (mb.) from Normal, March 1958.



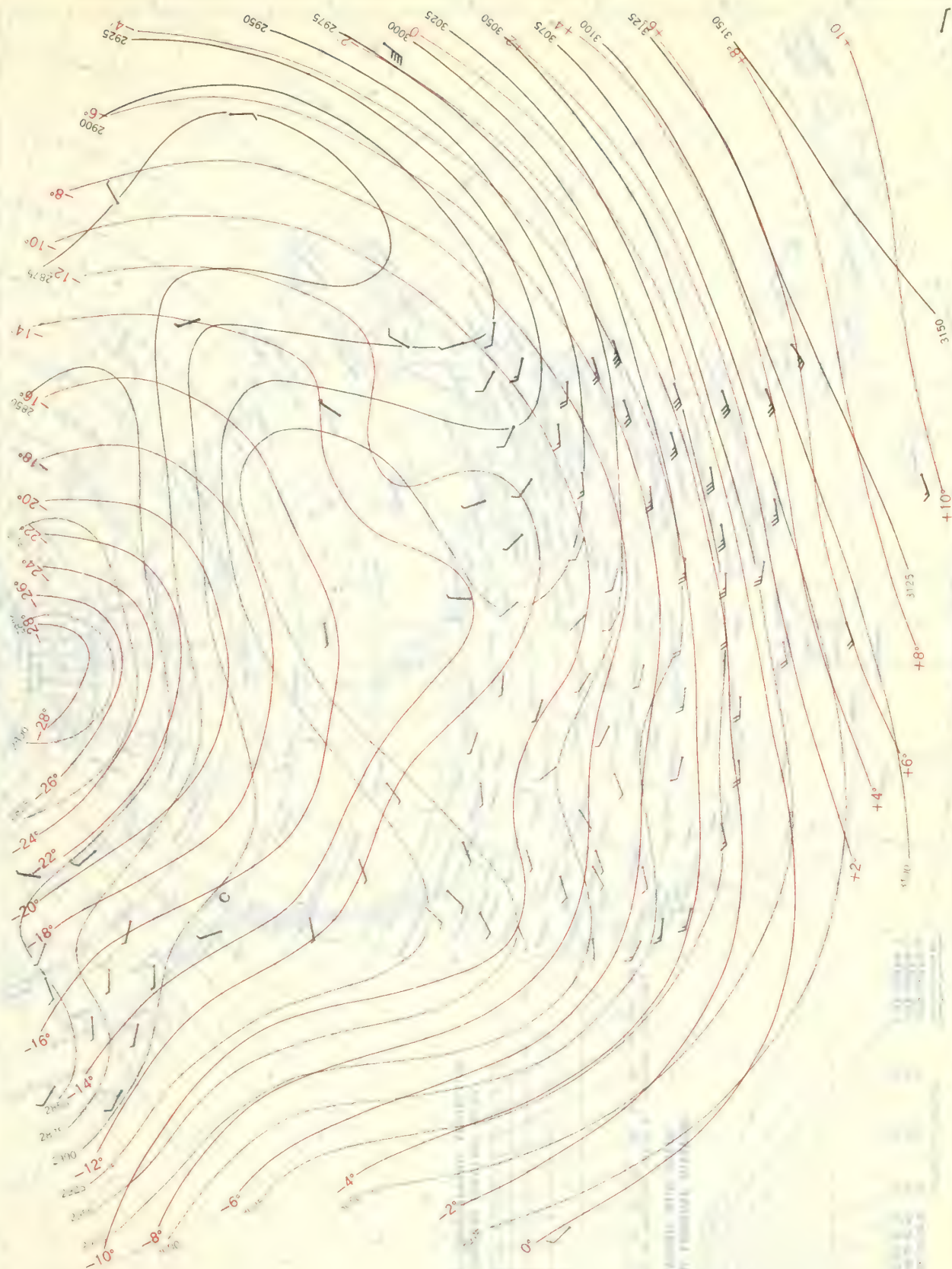
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, March 1958. Average Height and Temperature, and Resultant Winds.



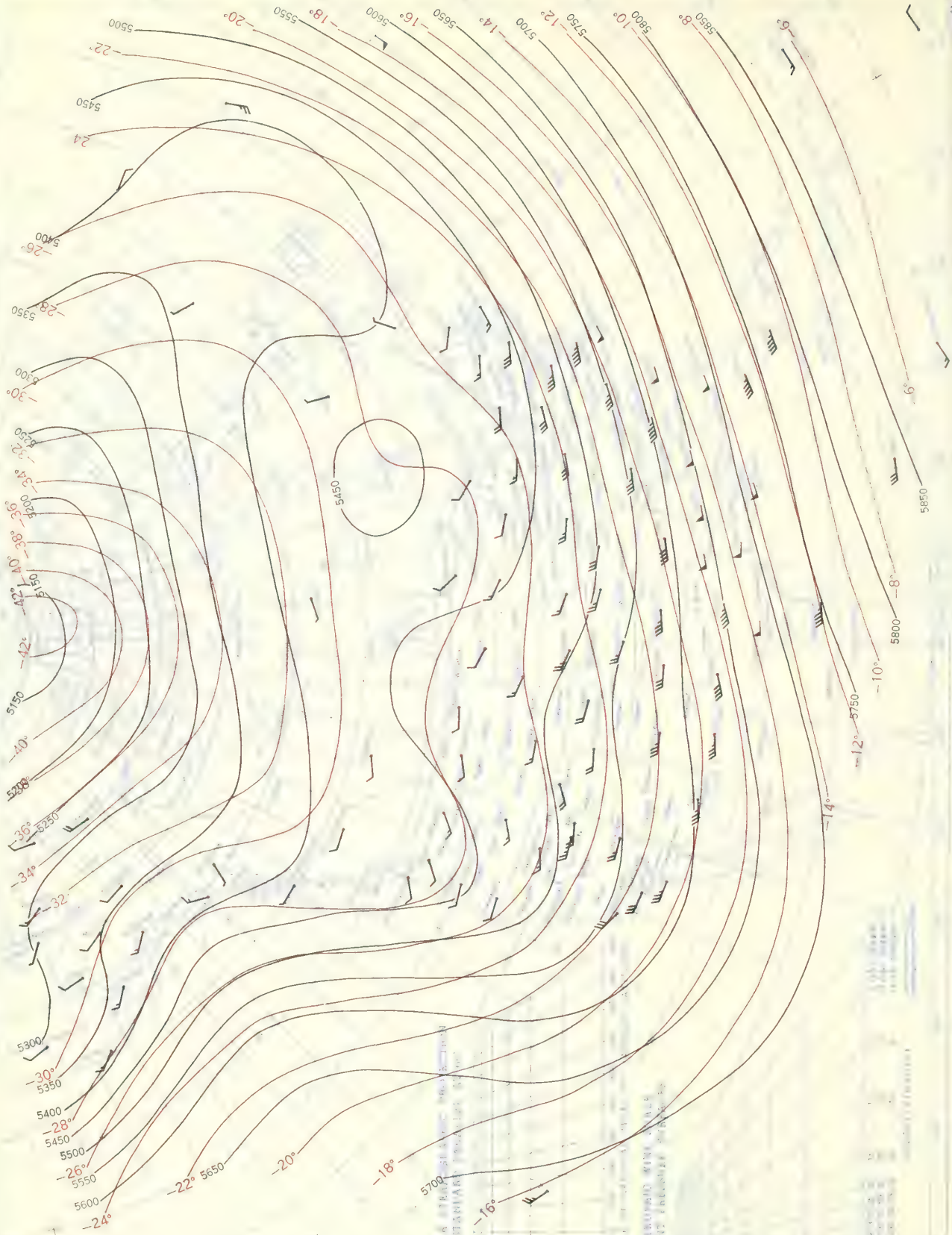
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, March 1958 Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, March 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, March 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, March 1958. Average Height and Temperature, and Resultant Winds.

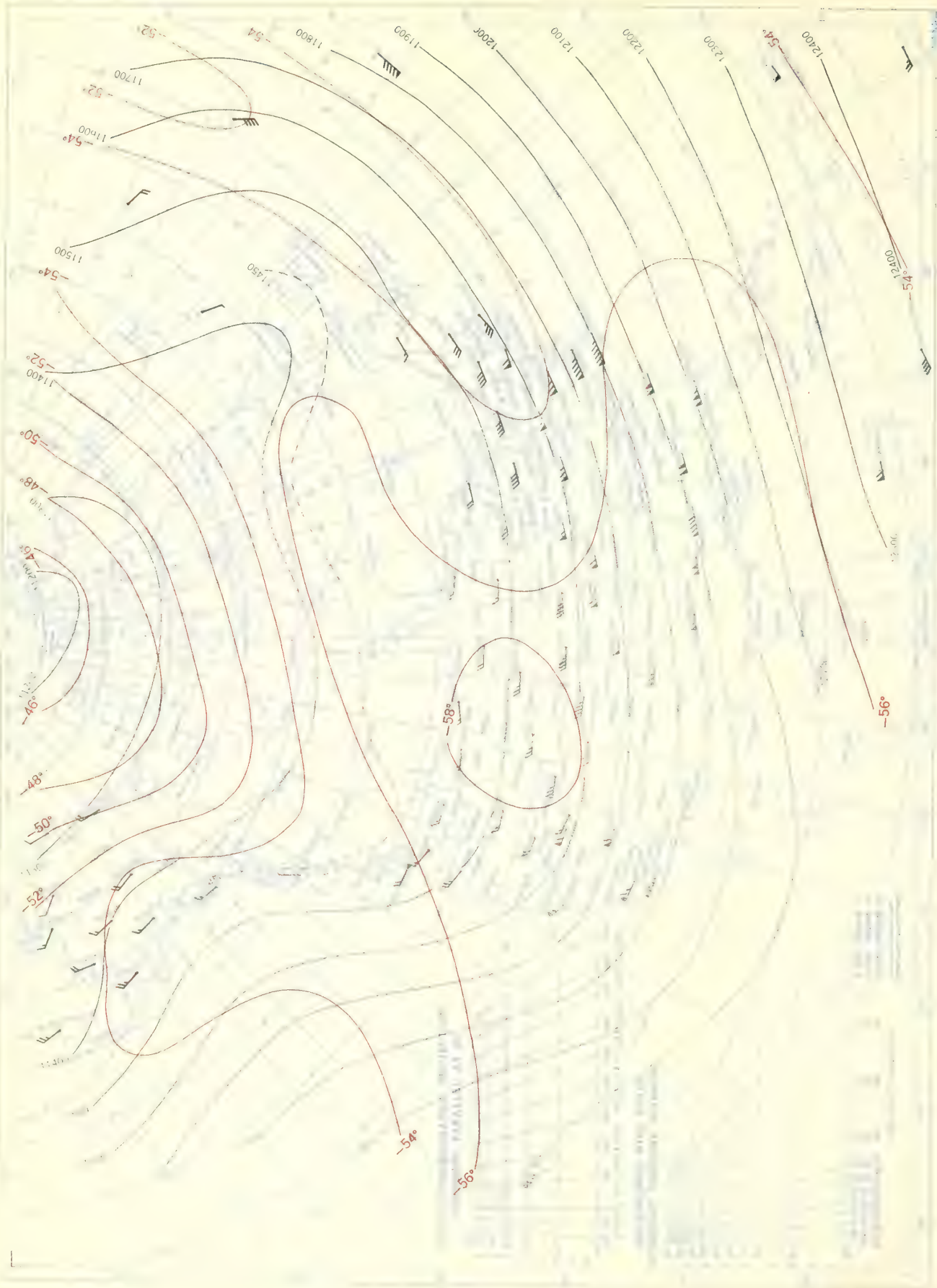
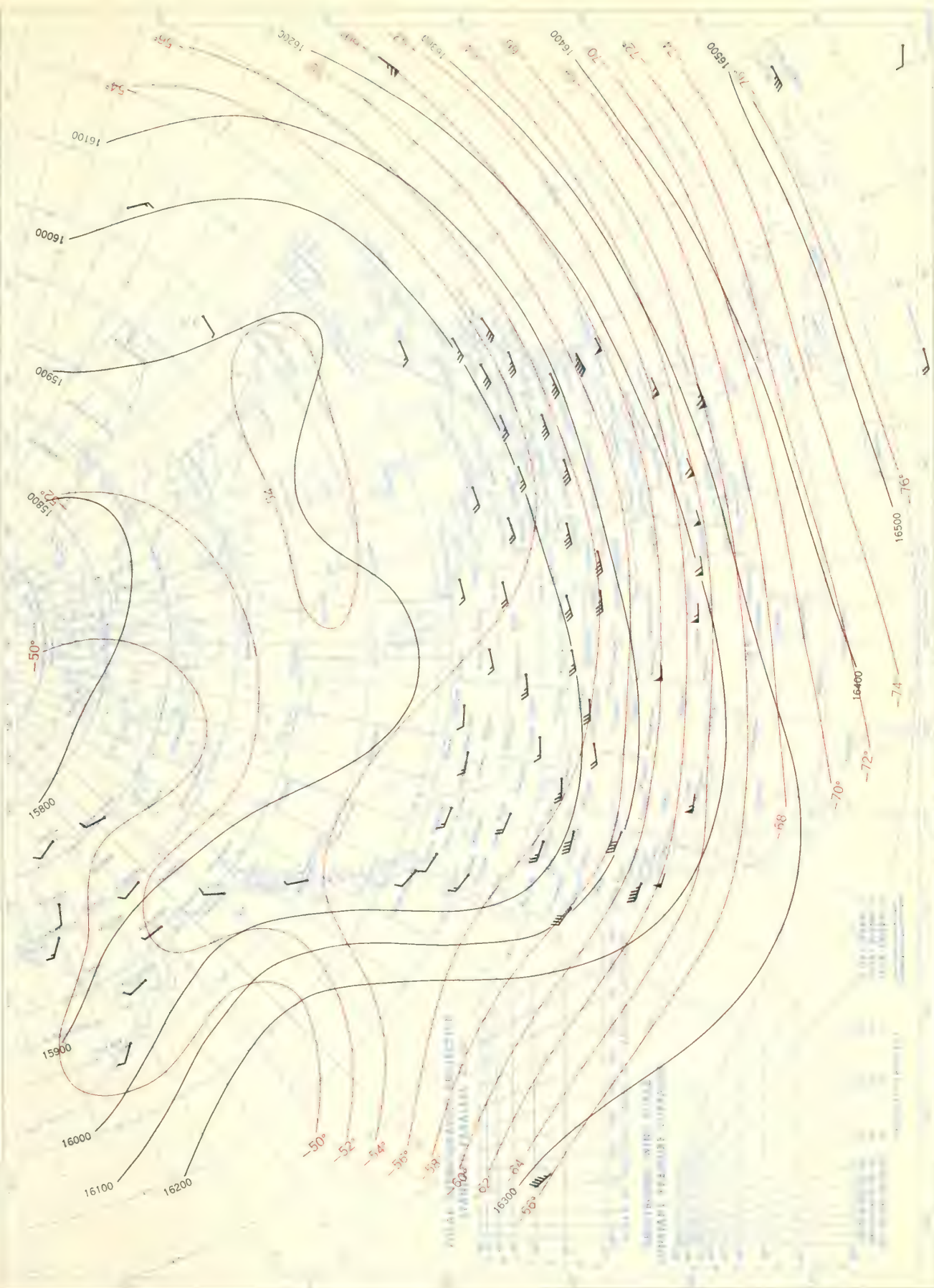
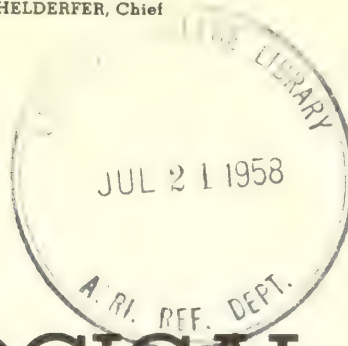


Chart XVII. 100-mb. Surface, 1200 GMT, March 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE
SINCLAIR WEEKS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief



CLIMATOLOGICAL DATA

NATIONAL SUMMARY



STANDARD METEOROLOGICAL
SYMBOLS AND ABBREVIATIONS
U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

APRIL 1958
Volume 9 No. 4



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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 4

APRIL 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

In most sections April was stormy and wet, with frequent temperature fluctuations and in northern areas unusually heavy local snowfalls for so late in the spring. Serious flooding occurred in California, and widespread minor flooding in the South and East. Rains and wet soil continued to delay agricultural operations in many sections of the South. Soil moisture at the end of the month was ample to excessive, except in a few relatively small areas near the north-central Canadian Border. Soil moisture conditions continued to improve in much of the Great Plains where wind erosion has been less than in recent years. Cool weather delayed snowmelt in the northern Rockies sufficiently to prevent serious flooding. Prospective water supplies for the Far West generally were good.

TEMPERATURE.--Temperatures, fluctuating frequently, set many new date records, both high and low, but averaged near normal for the month in most areas. Relative to normal the month was mildest in the Northeast and along the California coast, and coolest in the Great Basin of the Far West.

Warm spells during which new date highs were set at a number of stations occurred in north-central areas on the 16th and 17th, in Ohio Valley and Northeast on the 18th and 19th, and in south-central areas on the 23d. Minima dropped to unusually low levels in north-central areas on the 28th and 29th. On the latter date, freezing occurred as far south as Kansas and Missouri, and lows of 6° and 5° were reported in North Dakota and Minnesota, respectively.

Following a period of unusually cold weather in southern areas east of the Rockies during the last 3 weeks of March, temperatures were unseasonably mild during the first week of April, but fell to unusually low levels again during the second week. The remainder of the month was seasonably mild.

PRECIPITATION.--Although about normal to much above in most of the country, precipitation was 25 to more than 50 percent deficient in southern Texas, in a belt extending from southern Utah through Colorado and Kansas, and along the north-central Canadian Border including Michigan and northern Indiana.

In the region from the Great Lakes to central Montana where precipitation for the first 3 months of 1958 was about 50 percent of normal, precipitation for April was normal or above in much of Wisconsin, southern Minnesota, parts of Iowa, South Dakota, and southeastern Montana. April was the first month with normal precipitation at Minneapolis, Minn., since November 1957. Precipitation at Chicago, Ill., for the period January through April 1958 was 3.42 inches, only 38 percent of normal, the driest such period on record there. At the end of month, moisture was short in about 25 percent of Iowa, in north-central and northeastern Minnesota, in a few spots in northeastern Montana, and in north-central and northeastern North Dakota.

In several sections of the South and East and a large area in the Far West including most of California, and large portions of Nevada, Idaho,

Washington, and Oregon, precipitation ranged from 150 to over 200 percent of normal.

Nearly all the precipitation in the Far West fell during the first week except in western Washington and Oregon where the heaviest amounts fell during the third week. San Francisco, Calif., measured 5.47 inches for the wettest April there since 1884, and Santa Maria, Calif., had 4.24 inches, all except 0.02 inch falling during the first 6 days, the greatest total since the beginning of records there in 1900. Excessive rains in central and northern California during the first week produced serious flooding in the San Francisco Bay area and along the lower portions of the Sacramento and San Joaquin Rivers.

Heavy rains caused flooding, mostly minor, in many other parts of the Nation in the course of the month, particularly in the South and East. Rains and wet soil delayed cotton planting east of the Mississippi River and this operation was 2 to 3 weeks behind at the end of the month. Corn planting, too, was delayed in many sections as far north as the Ohio Valley.

Southern New England again was unusually wet. Providence, R. I., measured a total of 7.11 inches for its wettest April. Boston, Mass., had its third wettest April, 7.82 inches, and a total of 40.04 inches for the period November 1957 through April 1958 was its greatest total for any 6 consecutive months on record.

SNOWFALL.--One of the most outstanding falls occurred in the Sierra Nevada and northern mountains of California during the first week. On the 6th Blue Canyon reported 106 inches on the ground, only 4 inches less than the record depth of 110 inches measured in 1952. The snow pack at Norden increased from 130 inches on March 29 to 270 inches on April 14, the latter depth setting a new record for April; 10 feet of this new snow fell during a 5-day period. The greatest 24-hour increase at Norden occurred on the 2d and 3d when 54 inches fell. Mt. Shasta reported a 47.5-fall during the first 6 days, the highest April total there since records began in 1888.

During the passage of a storm across the central Great Plains to the Great Lakes region from the 4th through the 6th, moderate to heavy snow fell in northwestern Nebraska, northeastern South Dakota where a few drifts 5 feet high were reported near Britton and Summit, and in northern Wisconsin where falls of 12 inches were measured at Rhinelander and Antigo. Ten to 12 inches of new snow and strong winds created near blizzard conditions in upper Michigan on the 5th and 6th.

One to 9 inches of snow fell in parts of the Northeast during a coastal storm on the 11th and 12th. On the 11th, 4 to 7 inches of snow covered most of Connecticut. In this State 5 inches at Hartford was the heaviest fall there so late in the season, and 7 inches at Storrs was a record for a single storm. At Providence, R. I., 4 inches on the 11th was a record fall so late in the season, and produced the heaviest April total since 1917. Heavy snow fell in widely separated areas as a

GENERAL SUMMARY OF WEATHER CONDITIONS--Continued

APRIL 1958

storm moved eastward across the country from the 22d through the 24th. At Salt Lake City, Utah, a 24-hour fall of 12.3 inches on the 22d and 23d set a new record for April. The heaviest falls probably occurred in north-central Wyoming and south-central Montana. This storm was the heaviest since records began in 1908 at Sheridan, Wyo., where the estimated fall was 20 inches, about half of which melted as it fell, leaving a maximum depth of only 10 inches. In the mountains west of Sheridan road crews reported 4 to 5 feet of new snow at elevations of 8,000 to 9,000 feet, and up to 3 feet with little drifting was reported in the foothills. In Montana the storm dumped 55 inches on Red Lodge and 60 inches on Nye and Mouat Mine. An inch or more of snow fell in northwestern Kansas, heavy amounts in western Nebraska, and up to 14 inches in the Black Hills of South Dakota. One to 4 inches were reported in northern Wisconsin and light amounts in Northern Minnesota.

DESTRUCTIVE STORMS AND OTHER UNUSUAL PHENOMENA.--Heaviest storm losses occurred in California, New England, and Texas. Total storm damage in the midcontinent area was much greater than during March but still less than usual for April.

In California, local damage was widespread as fronts crossed the State on the 1st, 2d, 3d, and 7th. Rains, floods, snows, winds, and even a few tornadoes were responsible for 9 deaths, 8 injuries, and several million dollars damage.

Most damage in New England occurred during a coastal storm which began March 31 and continued through April 3. This storm was one of the most destructive there in 30 years, being comparable to the storms of November 29-30, 1945 and January 26-29, 1933. Tides caused tremendous damage along the shores of Maine, New Hampshire, and Massachusetts, with maximum losses south of Portland, Maine.

In Narragansett Bay tides were highest since hurricane Carol. Highways and sea walls were washed out, hundred of cottages and beach concessions were damaged or destroyed, and power and communications lines were downed. Total damage was estimated at several million dollars.

In Texas, numerous severe local storms were blamed for 2 deaths, many injuries, and nearly \$4 million dollars damage. The worst outbreaks occurred on the 2d, 8th and 9th, 19th through the 21st, and 27th through the 30th. Wind, hail, and a tornado caused more than \$1 million damage to crops and over a hundred thousand dollars to property in Collin County on the 27th. During three different hailstorms, stones the size of baseballs were reported, and a report (unofficial) from Bremond stated that a stone 20 inches in circumference fell there on the 22d.

In Alabama tornadoes on the 5th and 6th caused 1 death, 1 injury, and over a half million dollars damage, and hail damage in Birmingham on the 3d was estimated at about \$200 thousand. Also on the 5th tornadoes killed 1 person, injured 13, and damaged property to the extent of nearly a half million dollars in central and southern Illinois. On the 1st tornadoes were reported near the San Francisco Airport and near Turlock in California; total damage was only a few thousand dollars. Tornadoes struck in Florida on the 15th, one causing 18 injuries and about three-quarters of a million dollars damage at Fort Pierce, and another causing 8 injuries and many thousands of dollars damage in the St. Augustine area.

At Rapid City, S. Dak., the temperature remained at 32° for 31 consecutive hours on the 4th, 5th, and 6th, and is believed to be the most uniform temperature ever recorded there.

CONDENSED CLIMATOLOGICAL SUMMARY

APRIL 1958

Section	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.	
Alabama	3 Stations	93	27+	Florence	26	8	Danville	10.69	West Blockton	2.40	
Arizona	Yuma WB AP	107	21	Fort Valley	0	5	Pinal Ranch	3.05	2 Stations	.00	
Arkansas	8 Stations	89	23+	3 Stations	28	8	Hamburg	20.27	Marshall	1.99	
California	Indio US Date Garden	109	22+	White Mountain 1	-10	5	Lytle Creek RS	13.55	Coyote Wells	.10	
Colorado	Las Animas 1N	90	22	Taylor Park	-15	13	Wolf Creek Pass 1E	4.95	Grand Junction WB AP	.06	
Connecticut	Falls Village	81	21	Coventry	17	5	Westbrook	8.33	Waterbury City Hall	4.80	
Delaware	2 Stations	85	20	3 Stations	28	9+	Wilmington Porter Res	5.60	Middletown 2S	3.98	
Florida	3 Stations	97	24	Milligan	38	8	Mt. Pleasant	11.32	Ft. Lauderdale Bahia Mar.	.08	
Georgia	Thomasville WB City	95	26	Blairsville Exp. Sta.	23	8	Flat Top	13.98	Butler	3.13	
Idaho	Grand View	80	16	Obsidian	-9	6	Pierce RS	6.99	Grasmere	.50	
Illinois	Palestine	92	18	Stockton 1N	24	29+	2 Stations	5.70	Taylorville	1.63	
Indiana	5 Stations	87	21+	Plymouth Pwr Sub. Sta.	21	1	Shelbyville Nursery	5.98	Albion	1.27	
Iowa	2 Stations	87	17	Winterset 3NW	18	29	Sioux City 8N	4.17	Des Moines WB City	1.04	
Kansas	do	91	23	Goodland WB AP	21	24	Cedar Vale	4.86	Fowler 7 NNE	.43	
Kentucky	Flemingsburg 2	90	18	2 Stations	24	9+	Stearns	9.21	Paducah	2.65	
Louisiana	Hineston	97	25	Bastrop	35	1	Haynesville	19.97	Houma 1SW	1.53	
Maine	Sanford 2NNW	82	21	3 Stations	14	11+	Bar Harbor	7.20	Fort Kent	2.05	
Maryland	2 Stations	88	24+	Oakland 1SE	16	2	Elkton	5.77	Ocean City	3.35	
Massachusetts	Lowell	82	21	March Hill Dam	18	5	East Wareham	11.06	Hubbardston	3.76	
Michigan	5 Stations	85	18+	Vanderbilt Trout Sta.	5	9	Bloomington	3.21	Grayling Military Res.	.62	
Minnesota	Bird Island	88	16	Babbitt 2SE	3	29	Fairmont	4.84	Hibbing Pwr Sub.Sta.	.28	
Mississippi	3 Stations	92	24	2 Stations	27	8	Nittaw Yuma	13.66	Beaumont	3.18	
Missouri	do	89	23	Berryman 4NW	22	8	Farmington 1E	7.77	Prairie Hill 3WNW	1.41	
Montana	Miles City	82	14	Yellowstone Pk NE Ent.	-5	29	Red Lodge	9.02	2 Stations	.00	
Nebraska	Valentine WB AP	90	16	Lodgepole	15	24	Fremont	5.59	Ellsworth	.91	
Nevada	2 Stations	98	22+	Eureka	6	4	Glenbrook	4.64	Smokey Valley	.07	
New Hampshire	5 Stations	82	22+	2 Stations	14	5	Pinkham Notch	6.31	First Conn. Lake	2.25	
New Jersey	Belvidere	86	20	High Point Park	16	9	Cedar Grove	8.47	Bridgeton 1NE	3.65	
New Mexico	Deming	96	23	Tres Piedras	-4	13	Gascon	4.97	Rodeo	.05	
New York	Allegany State Park	88	24	2 Stations	7	9	White Plains Airport	8.08	Salem	1.22	
North Carolina	2 Stations	94	25	Celo 2S	21	2	Haywood Gap	14.39	Willard 1N	2.12	
North Dakota	Upham 3N	87	14	Langdon Exp Farm	3	29	Forman	3.36	San Haven	.02	
Ohio	Canfield 1S	88	19	Dorset 2E	13	9	Ironton	6.68	Toledo Sewage	1.70	
Oklahoma	Bartlesville 2W	95	23	Kenton	24	7	Yuba 2S	7.76	Laverne	.71	
Oregon	4 Stations	83	30+	Crater Lake NP HQ	8	24	Valsetz	14.48	Voltage 2NW SOD H	.22	
Pennsylvania	do	88	25+	3 Stations	6	9	Zionsville 3SE	6.77	Kegg	1.55	
Rhode Island	Greenville	77	19	Greenville	25	9	Newport	8.59	Block Island WB AP	5.54	
South Carolina	Beaufort 7SW	95	25	Clemson College	25	8	Landrum 5ENE	11.15	McClellanville	3.91	
South Dakota	Pukwana 3W	93	16	Deerfield 5NW	1	26	Deadwood	5.54	Ludlow 2NW	.92	
Tennessee	7 Stations	88	25+	2 Stations	22	8	Haw Knob	12.49	Greenville 5SSW	3.72	
Texas	Rio Grande City 2ESE	111	24	Stratford	27	8	Daingerfield 9S	17.59	4 Stations	.00	
Utah	St. George PH	87	21	Soldier Summit	-18	1	Alta	9.87	Fruita	T	
Vermont	2 Stations	79	21+	Somerset	11	5	Mays Mill	5.34	Enosburg Falls	1.17	
Virginia	Farmville	91	19	Monterey	20	2	Rose Hill	8.25	Roanoke WB Airport	2.83	
Washington	Trinidad 2SSE	83	30	Blue Glacier	7	15	Cougar 1E	16.20	White Swan	.46	
West Virginia	4 Stations	88	24+	2 Stations	15	2	Pickens 1	8.23	Moorefield 1SSE	2.12	
Wisconsin	Marinette	87	18	Spooner Exp. Farm	-11	7	Owen 1ESE	4.49	Brule Ranger Sta.	.78	
Wyoming	2 Stations	84	16	Lake Yellowstone	-8	29	Big Horn 5SW	5.46	2 Stations	.10	
Puerto Rico	Caguas	97	5	Utua	54	8	Calero Camp	12.87	Granard, V. I.	.49	

+ And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

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State and station	Elevation feet	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	0.1 inch or more	With thunderstorms	Snow	Sleet	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
ft	mb	mb	°f	°f	°f	°f	°f	°f	°f	°f	°f	°f	%	in.	in.	in.	0.1 inch or more	With thunderstorms	Total	in.	in.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	M p. h.	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CLIMATOLOGICAL DATA

APRIL 1958

Elevation (ground) Station Sea level	Pressure		Temperature								Precipitation										Wind				No. of days (sunrise to sunset)						
	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more With thunderforms	Snow, Sleet	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine		
Ft	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	In	In	In	In	In	In	M	M	M	M	0-3	4-7	8-10	0-10	%			
694	988.5	1014.3	62	40	51.1	0.1	84	18	26	29	0	3	37	63	2.12	-1.31	0.62	9	4	T	T	11.4	SW	38	W	24	5	9	16	6.6	60
948	982.7	1014.6	61	39	50.2	-2.2	84	17	24	29	0	6	35	61	1.31	-1.14	0.37	10	2	T	T	13.0	E	42	E	4	7	8	15	6.7	60
1065	989.2	1014.6	58	36	47.3	4	80	17	23	29	0	12	32	56	3.89	1.20	2.11	9	3	T	T	12.7	SW	48	W	24	5	6	16	6.4	60
1094	972.6	1014.2	60	38	49.1	-1.1	82	16	25	29	0	7	35	64	3.78	1.64	1.70	12	5	T	T	15.0	ESE	52	E	4	8	6	16	6.8	67
870	-----	-----	59	36	47.6	-6	83	17	25	29	0	10	61	3.12	0.73	1.94	9	1	0	0	15.3	---	---	---	---	---	---	---	---	---	---
IOWA																															
1375	965.5	-----	61	42	51.5	-2.5	77	17	32	29	0	2	66	83	-1.41	21	16	9	0	0	8.5	N	33	NW	6	6	6	18	7.2	52	
2594	924.8	1013.3	61	40	50.2	-3.6	80	16	29	7	0	1	38	68	1.74	-1.52	2.27	7	4	0	0	14.8	SSE	61	NW	5	6	8	16	7.0	49
3645	885.2	1012.9	57	33	44.9	-2.3	82	16	21	24	0	17	34	73	1.73	-0.08	47	13	4	6.9	3	12.7	NNW	48	NNW	5	6	7	17	7.0	49
877	977.7	1013.9	65	42	53.1	-1.4	86	23	32	29	0	2	39	63	1.78	-1.72	76	11	6	0	0	11.7	S	39	NW	6	3	10	17	7.2	49
1321	964.1	1013.0	64	43	53.6	-2.6	84	23	33	7	0	0	41	64	1.23	-2.29	49	10	4	0	0	13.2	NNW	47	NW	6	5	7	18	7.3	56
KANSAS																															
979	978.9	1014.9	65	43	54.2	-3	80	19	29	8	0	2	44	72	4.16	1.40	1.16	17	7	0	0	12.3	S	---	---	---	4	6	20	7.4	---
474	994.7	1014.1	69	46	57.1	1.1	88	18	31	8	0	1	44	66	5.38	1.37	1.32	15	8	0	0	10.5	SE	56	SE	5	5	6	19	7.3	45
LOUISIANA																															
64	1011.2	1014.4	79	58	68.6	1.8	91	24	44	8	2	0	57	72	4.14	-0.36	1.65	5	6	0	0	9.3	E	---	---	---	4	10	16	7.0	---
12	1011.9	1013.4	78	61	69.5	1.5	88	25	48	8	0	0	59	73	4.94	0.67	2.37	10	6	0	0	9.4	SSE	35	SSE	28	4	9	17	6.7	---
9	1012.2	-----	78	62	70.4	1.6	90	24	49	8	1	0	71	37	1.28	-2.28	1.20	5	4	0	0	7.0	---	21	S	23	5	15	10	6.4	59
3	1011.9	1014.2	78	60	69.3	1.0	90	24	50	8	1	0	58	71	2.00	-3.40	91	5	4	0	0	11.2	SSE	43	NW	28	4	15	11	6.4	---
252	1003.4	1012.7	74	54	63.8	-3.3	88	23	42	12	0	0	51	71	7.78	3.19	2.65	12	8	0	0	11.2	S	---	---	---	7	8	15	6.6	50
LOUISIANA																															
624	990.9	1014.6	49	32	40.6	5.8	68	16	23	11	0	19	32	72	3.42	0.79	2.11	13	0	5.6	5	12.5	NW	48	WSW	25	4	7	19	7.2	---
61	1010.8	1014.9	53	34	43.8	1.9	68	21	23	9	0	14	35	76	5.28	1.53	1.39	13	0	6.3	1	14.1	N	45	N	2	8	4	18	6.8	50
MARYLAND																															
14	-----	-----	69	51	59.9	5.6	84	20	36	9	0	0	68	96	1.48	11	4	5	---	---	---	---	---	---	---	---	---	---	---	---	---
146	1010.5	1015.5	65	45	54.9	2.5	80	20	33	9	0	0	42	64	4.29	0.57	1.49	13	5	0	0	13.4	W	49	NE	11	8	8	14	6.3	54
294	-----	-----	64	41	52.5	-4	85	19	28	9	0	6	68	98	1.15	10	1	1	0	0	---	---	---	---	---	---	---	---	---	---	---
MAINE																															
629	990.6	1014.3	55	38	45.7	2.0	75	21	24	9	0	7	70	6.94	2.95	1.77	13	1	10.6	7	16.6	S	45	S	21	8	5	17	6.4	50	
15	1008.8	1013.6	56	41	48.8	1.6	78	21	30	9	0	1	37	69	7.82	4.36	1.72	12	1	2.1	2	13.4	NW	36	NNE	1	8	3	19	6.8	55
43	1013.6	1014.2	52	38	44.8	1.2	64	25	30	10	0	6	39	81	6.79	3.34	1.47	12	2	1.3	1	17.1	S	56	N	1	6	7	17	6.9	59
1153	971.8	-----	56	35	45.5	3.5	78	18	21	9	0	13	68	4.51	0.90	1.16	12	1	1.2	1	---	---	---	---	---	---	---	---	---	---	---
986	976.7	-----	55	38	46.4	2.6	76	21	24	9	0	9	68	3.12	2.22	11	0	9.2	6	13.5	---	---	---	---	---	---	---	---	---	---	---
MAINE																															
587	992.9	-----	51	34	42.6	3.0	84	17	20	9	0	14	65	0.98	-1.17	0.36	5	2	1.1	1	10.9	---	37	E	6	9	8	13	5.6	72	
619	988.5	1015.6	60	39	49.6	3.2	81	19	25	9	0	6	33	57	1.69	-1.22	0.68	11	3	2	T	11.3	E	45	W	24	11	7	12	5.8	65
722	985.8	1014.6	61	38	49.5	3.3	83	17	25	9	0	6	33	58	1.96	-0.98	0.55	9	3	4	T	12.4	NNW	46	NNW	24	11	6	13	5.6	---
MAINE																															
856	-----	-----	61	38	49.5	4.2	83	17	23	9	0	9	68	1.53	-1.30	0.69	10	4	3	T	6.8	SW	22	W	24	---	---	---	---	---	69
594	992.6	-----	51	33	41.9	3.7	65	30	22	9	0	15	67	1.98	-1.12	0.54	8	1	8.5	4	10.7	---	45	N	24	8	10	12	5.9	63	
761	987.1	1015.3	59	34	46.9	2.5	81	19	22	9	0	14	32	62	2.05	-0.56	0.83	9	5	T	T	9.3	ENE	25	WSW	24	11	5	14	5.9	---
681	989.5	1015.1	59	36	47.5	2.7	79	17	23	9	0	11	31	59	2.92	0.02	1.28	8	4	T	0	12.7	E	38	SW	24	12	4	14	5.8	66
677	987.5	-----	51	34	42.4	3.7	81	17	20	29	0	16	68	1.63	-0.63	0.20	9	0	4.9	3	8.2	---	29	SW	30	5	13	12	6.8	68	
627	991.5	1015.2	57	36	46.5	2.9	76	18	23	9	0	11	31	57	1.27	-1.07	0.54	6	1	0	0	---	---	---	---	---	12	6	12	6.5	---
721	992.9	1016.2	52	31	41.4	4.6	73	17	19	9	0	19	28	63	1.51	-0.44	0.66	9	1	5	T	10.9	NNW	39	SW	30	7	7	16	5.4	59
MAINE																															
1409	973.6	1015.2	52	30	41.2	4.4	76	16	13	29	0	18	25	57	1.26	-1.24	0.33	6	0	1	T	15.2	E	75	NE	5	5	10	15	6.6	64
1179	972.9	1014.8	55	29	41.8	4.6	77	14	9	28	0	21	23	52	1.40	-1.33	0.30	5	0	1.4	T	10.6	SE	43	NNW	17	8	7	15	6.1	---
830	981.0	1015.3	59	37	47.9	1.9	84	16	22	29	0	8	32	58	1.99	0.08	0.83	9	1	1.6	T	14.0	E	35	W	28	7	12	11	5.8	62
1017	977.0	1014.8	58	34	45.6	6	82	16	23	29	0	14	33	66	2.35	0.04	0.88	9	0	T	0	13.0	ESE	---	---	---	7	9	14	6.3	---
1034	976.0	1014.5	57	33	45.1	2.2	83	16	18	29	0	13	29	60	2.03	0.07	0.86	8	0	6	1	---	---	---	---	---	7	11	12	6.2	---
MAINE																															
305	1002.1	1014.4	75	54	64.6	-3	90	24	39	8	1	0	53	71	6.83	2.01	1.87	9	8	0	0	7.5	SSE	36	NW	29	5	8	17	6.8	47
294	1000.4	-----	77	53	65.0	7	91	24	37	8	1	0	55	71	5.28	1.18	1.45	11	8	0	0	---	---	---	---	---	7	9	14	6.2	---
234	1004.8	-----	74	57	65.5	-3	90	23	41	8	1	0	55	71	8.06	3.22	2.61	11	8	0	0	8.7	---	33	NW	6	5	9	16	6.9	40
MAINE																															
778	985.1	1013.8	64	44	54.2	-3	87	23	33	8	0	0	41	63	1.99	-1.81	0.58	10	5	0	0	12.2	ESE	36	SW	23	5	5	20	7.3	52
741	978.3	1013.3	65	46	55.6	-2	88	23	35	7	0	0	39	58	2.78	-0.83	1.11	10	5	0	0	10.4	SNE	38	SW	5	3	12	15	7.0	49
809	978.0	-----	65	41	53.2	-1.3	84	23	31	29	0	3	68	1.25	-2.10	0.74	8	6	0	0	12.0	N	46	S	4	5	12	13	6.6	---	
465	-----	-----	65	49	57.2	7	83	17	37	7	0	0	42	63	2.81	-1.21	0.97	12	2	0	0	11.6	NW	42	SW	23	3	12	15	7.2	51
552	993.9	1014.1	65	47	55.7	1	83	17	35	8	0	0	42	63	2.81	-1.12	1.12	11	4	0	0	10.7	NNW	42	SW	23	3	8	19	7.4	---
1265	965.5	1013.4	64	45	5																										

CLIMATOLOGICAL DATA

APRIL 1958

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days			
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile	to sunset							
																				Total	Max. depth on ground				Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine		
ft.	mb.	mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	in.	in.	in.	in.	in.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	0-3	4-7	8-10	0-10	%						
NEW HAMPSHIRE (Cont'd.)																																
Mt. Washington	6262	801.7	-----	31	19	24.8	2.8	47	24	1	9+	0	24	--	86	8.33	2.45	2.01	20	1	43.9	30	31.6	W +101	WNW	10	7	5	18	7.2	42	
NEW JERSEY																																
Atlantic City (U)	8	1012.5	-----	57	45	51.2	1.8	72	23	32	9	0	1	--	--	4.33	-.93	1.53	11	0	.0	0	17.0	---	64	SE	29	11	4	15	6.0	58
Newark	11	1013.5	1014.8	62	44	53.0	3.0	81	21	30	9	0	1	39	62	6.41	3.14	2.01	11	1	T	T	10.8	WNW	+30	SSW	29	9	6	15	6.3	--
Trenton (U)	56	1007.5	1014.5	63	45	54.0	3.3	83	20	28	9	0	1	--	--	5.77	2.77	2.33	11	1	.0	0	10.2	---	33	S	29	9	9	12	5.8	65
NEW MEXICO																																
Albuquerque	5310	844.6	1009.3	65	41	53.0	-2.5	84	22	28	6	0	2	27	42	.62	.09	.36	5	3	T	0	11.5	E	49	W	22	12	8	10	5.1	70
Clayton	4969	841.9	1010.8	60	34	46.7	-4.3	80	22	25	7	0	16	--	--	1.69	.56	.60	8	4	5.7	2	---	---	---	---	---	10	9	11	5.6	--
Raton	6379	802.2	1011.9	57	30	43.6	-3.3	76	22	20	6	0	21	--	--	1.25	.17	.47	7	3	9.2	3	---	---	---	---	---	8	14	6.1	--	
Roswell	3612	889.6	1011.9	72	44	58.3	-1.4	91	22	31	14	1	3	33	67	.84	.09	.48	4	3	1.4	1	15.5	---	69	W	4	14	8	8	4.5	--
NEW YORK																																
Albany	277	1010.7	1014.5	59	39	49.1	4.0	81	21	25	5	0	5	36	64	3.10	.49	1.02	11	0	T	0	10.3	N	34	W	25+	7	8	15	6.6	60
Binghamton	1590	955.0	1014.9	54	35	44.6	2.0	77	18	19	9	0	15	33	68	4.29	1.05	1.25	11	2	3.0	7	9.7	NNW	47	NW	25	7	9	14	6.1	55
Buffalo	693	986.8	1015.6	59	38	48.2	4.4	81	24	23	9	0	9	35	65	3.95	1.40	1.02	11	4	4.2	T	9.7	SSW	47	W	24	9	9	12	5.8	69
New York (U)	10	1013.6	-----	60	45	52.7	2.9	76	19	29	9	0	1	--	--	6.22	3.00	2.03	11	0	T	0	14.2	NW	44	SE	6	10	7	13	5.8	62
New York	19	1012.9	-----	60	45	52.7	2.6	77	19	30	9	0	1	38	63	7.24	4.14	2.52	12	0	.5	T	14.5	WNW	45	NE	11	9	4	17	6.4	--
Rochester	543	995.7	1015.4	59	37	47.9	3.4	81	24	24	9	0	9	36	68	3.10	.46	.86	9	1	1.1	T	9.8	WSW	51	W	24	10	6	14	5.6	65
Schenectady	217	-----	-----	60	40	49.6	4.5	80	21+	27	9	0	4	--	--	3.17	.12	1.08	10	0	T	0	---	---	---	---	---	17	7	6	--	--
Syracuse	424	993.5	1016.0	59	38	48.3	2.3	80	18	22	9	0	9	36	67	3.36	.24	1.33	11	1	1.9	1	11.5	WNW	45	N	8	8	14	6.0	55	
NORTH CAROLINA																																
Asheville (U)	2203	935.5	-----	66	45	55.5	.0	86	24	33	8	0	0	--	--	4.04	1.18	1.37	13	8	.0	0	9.6	---	36	NW	25	9	5	16	6.5	46
Cape Hatteras (R)	9	1014.3	1015.3	63	49	56.1	-3.5	76	23	37	1	0	0	48	78	3.63	.55	1.18	13	2	.0	0	14.0	NNE	50	SSE	6	8	7	15	6.2	--
Charlotte	725	986.7	1014.9	72	49	60.6	-2.9	90	24	33	8	0	15	58	86	7.64	4.47	1.85	12	4	.0	0	10.3	NNE	53	NW	25	9	6	15	6.4	54
Greensboro	891	983.8	1016.0	68	47	57.4	3	87	24	32	8+	0	2	44	65	6.11	2.76	1.32	13	5	.0	0	9.1	SW	34	NE	16	7	7	16	6.6	60
Raleigh	433	1001.3	1015.3	70	48	59.1	.6	90	24	32	2	1	1	46	66	5.02	1.49	2.02	11	7	.0	0	8.8	S	+27	NNE	16	7	8	15	6.4	45
Wilmington	30	1014.0	-----	71	52	61.5	-7	89	19	39	13+	0	0	--	--	6.20	3.49	2.94	11	3	.0	0	16.3	---	56	NE	16	11	7	12	5.6	61
Winston-Salem	967	980.0	1015.5	69	48	58.3	.8	89	24	34	8	0	0	44	63	6.92	3.52	2.39	11	5	.0	0	12.2	NE	+40	NW	25+	7	8	15	6.5	--
NORTH DAKOTA																																
Bismarck	1650	953.9	1015.2	57	32	44.6	1.5	83	14	18	29	0	15	30	61	.76	-.63	.40	6	0	T	0	13.4	E	49	NW	28	3	13	14	7.4	58
Devils Lake (U)	1471	969.7	-----	55	31	42.9	2.9	80	14	13	28	0	15	58	86	-.78	-.29	.00	0	0	.5	T	9.7	NW	32	NW	28	4	6	20	7.3	53
Fargo	895	980.7	1015.7	57	33	45.2	3.1	80	16	14	29	0	11	28	56	1.39	-.49	.56	8	0	T	T	16.6	N	54	N	28	6	10	14	6.6	62
Williston (U)	1877	946.2	1014.6	56	35	45.4	2.5	77	14	15	28	0	10	29	55	.33	-.74	.16	6	0	T	T	9.5	SE	37	W	18	3	10	17	7.6	55
OHIO																																
Akron	1210	977.1	1015.7	61	38	49.5	2.4	81	19	20	9	0	9	36	64	4.20	1.00	1.60	13	4	1.0	0	11.9	NW	---	---	---	7	9	14	6.5	--
Cincinnati Obs.	761	-----	-----	65	44	54.8	1.2	85	18	34	30+	0	0	--	--	3.92	.28	.99	13	5	T	0	6.7	---	24	W	5	---	---	---	45	--
Cincinnati	869	982.3	1014.5	64	43	53.8	1.7	83	18	30	8	0	2	39	62	3.49	-.10	.85	14	6	T	0	10.2	SSW	35	WNW	24+	2	8	20	8.0	--
Cleveland (U)	787	986.7	1015.0	62	41	51.4	4.1	84	19	25	9	0	6	36	60	3.31	.58	1.08	12	3	.2	T	14.2	S	59	W	24	8	10	12	6.0	62
Columbus (U)	724	-----	-----	63	44	53.2	1.8	82	19+	27	9	0	1	--	--	4.23	1.04	.97	13	4	T	0	---	---	---	---	---	3	24	8.6	--	--
Columbus	815	984.9	1015.3	64	41	52.4	2.2	85	19+	26	9	0	5	49	65	4.09	.65	.97	13	4	T	0	9.7	ENE	36	W	24	4	10	16	6.9	51
Dayton	1002	978.0	1014.6	62	41	51.6	1.1	82	18	28	9	0	4	38	64	4.80	1.73	1.31	15	3	T	T	11.3	SW	56	NW	5	4	8	18	7.5	61
Sandusky (U)	603	992.7	-----	59	42	50.4	2.5	84	19	29	9	0	3	--	--	3.51	.55	1.04	11	3	T	T	9.2	---	56	SW	24	14	11	5	4.1	71
Toledo	676	989.6	1015.3	61	38	49.5	3.0	82	19	24	9	0	7	37	65	2.00	-1.25	.66	10	3	T	T	12.6	E	46	SW	24	10	6	14	5.9	64
Youngstown	1178	972.5	1015.6	61	38	49.5	2.3	82	24+	20	9	0	10	36	64	3.22	-.42	.90	12	4	.6	T	11.6	SW	+37	SW	24	9	8	13	6.2	--
OKLAHOMA																																
Oklahoma City	1280	969.5	1013.3	66	47	56.1	-4.2	89	23	35	7	0	0	45	71	2.22	-.95	.90	10	7	.0	0	14.3	SSE	47	NW	6	9	8	13	6.0	57
Tulsa	672	988.5	1013.0	69	49	59.0	-1.7	93	23	39	7	1	0	44	63	4.39	-.14	1.57	9	6	.0	0	9.9	NNW	40	S	23	5	9	16	6.6	46
OREGON																																
Astoria	8	1016.3	1016.9	57	40	48.5	-1.2	72	12	34	9	0	0	43	81	7.03	1.88	1.29	17	0	.0	0	6.9	SE	+29	S	17	4	2	24	8.2	--
Burns (U)	4140	871.7	1015.2	55	31	43.2	-3.4	67	15+	22	5	0	20	24	69	1.09	.27	.37	11	0	5.8	4	---	---	---	---	---	4	9	17	7.2	--
Eugene	361	1004.1	1017.9	61	40	50.6	-.3	78	12	34	26	0	0	--	--	3.18	.64	.61	16	3	.0	0	8.2	---	+30	S	2	6	4	20	7.3	--
Meacham	4050	-----	-----	47	31	38.7	-2.4	62	13	26	4	0	23	--	--	5.87	3.14	1.33	19	1	25.5	14	---	---	---	---	---	3	3	24	8.6	--
Medford	1312	969.2	1017.3	64	38	50.8	-1.5	81	30	29	7	0	3	38	65	.40	-.79	.21	6	1	.0	0	6.2	NW	+35	SSE	1	8	4	18	6.8	--
Pendleton	1492	862.1	1016.1	60	40	49.9	-2.4	72	30	35	18+	0	0	38	68	2.45	1.41	.51	18	1	.0	0	9.4	SE	+38	SSW	2	4	5	21	7.8	--
Portland	21	1011.2	1016.8	61	41	50.9	-.9	77	12	34	26+	0	0	42	73	3.33	1.22	.80	19	2	.0	0	9.2	ESE	36	S	2	5	3	22	7.8	48
Roseburg	505	998.6	1017.3	63	39	51.0	-.5	83	12	32	27+	0	2	--	--	1.82	.31	.49	12	1	.0	0	4.8	---	+23	S	2	5	7	18	7.3	38
Salem	195	1009.8	1017.3	61	40	50.2	-1.2	79	30	30	5	0	1	42	76	3.71	1.32	.82	17	1	.0	0	7.6	S	29	W	17+	6	3	21	7.5	--
Sexton Summit (R)	3836	-----	-----	51	34	42.5	-1.8	68	30	27	3	0	14	--	--	1.66	-.42	.71	11	0	12.6	28	---	---	---							

CLIMATOLOGICAL DATA

APRIL 1958

State and station	Elevation (ground)	Pressure			Temperature										Precipitation							Wind		No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal			No. of days	No. 90° F or above		Average dew point	Average relative humidity		Departure from normal	Greatest in 24 hours		No. of days		Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
							Highest	Date	Lowest		Date	Max 90° F or above		Min 32° F or below	Total		In.	In.	In.	In.	In.	In.			In.	In.		In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
CALIFORNIA Entire State	Mar. 29- Apr. 7				9	8	7		Rain, snow, wind, electrical	Series of storms developing off coast with associated fronts moving across California, caused almost continuous moderate to heavy precipitation over most of State. Description of portion of storm and storm damage occurring March included in March 1958 report. Unusually strong cold fronts on 1st, 2d, 3d, and 7th caused widespread thunderstorms, hail, and strong, gusty winds over State. Other freak winds, described in newsreports as "twisters" but not substantiated by eye-witnesses, caused considerable damage to buildings and trees Carlsbad and Loma Alta Canyon in San Diego County, Fullerton, Huntington Beach, Redondo Beach, Aliso Village, and Torrance. Elsewhere, strong, gusty winds damaged trees, powerlines, and buildings in scattered areas throughout California. Freak wind storm April 1 uprooted 42 almond trees and ripped off garage roof at ranch near Le Grand. Heavy snow fell in Sierras, occasionally as low as 1500 feet, and many slides stopped transportation through mountains. Soda Springs Weather Station completely buried by heavy snowfall. At Norden, 10 feet of snow fell in 5 days, 269 inches on ground on 4th. Snowslide near Norden derailed mail train, injuring 2 trainmen, marooning 25 passengers. Rainfall near record intensity accompanied frontal passage in central coastal area on 2d. 0.96 inch of rain fell at San Francisco in 60 minutes, flooding downtown streets, basements of business establishments, numerous other places in Bay area and Carmel River area, Monterey County. Entire State designated disaster area by President on April 5; rivers overflowed throughout central and south, many smaller streams in central reached peaks exceeding those in floods December 1955; several thousand acres of farmland flooded in San Joaquin Valley from Tule, Chowchilla, Fresno, Merced, and San Joaquin Rivers, Panoche, Los Gatos, and other minor creeks. Except minor flooding Roseville, no additional floods in Sacramento Valley, but considerable overflow of all weirs of Sacramento River. Russian River 4 feet above flood stage at Guerneville on 3d, record spring stage, but only minor flooding, and no serious flooding of Eel and Klamath Rivers. Southern California streets flooded in low places in many areas; overflowing on Santa Maria River, Carbon Canyon Creek, and Mojave River. Lower sections of Mojave River, normally dry, had surface water first time since 1943. Locally heavy hail occurred in many places, considerable crop damage, particularly to almond orchards. Lightning struck powerlines, transformers, and buildings in several localities, and near Santa Barbara air liner damaged slightly and no injuries to 33 persons aboard. Persistent strong winds offshore raised mountainous seas from Crescent City to Monterey, causing estimated \$143,000 damage to harbor installations and beach facilities. At Morro Bay, 3 fishing boats torn from moorings and sunk. Wind-blown waves, with abnormally high water level at Clear Lake again damaged homes and business establishments near shore. Numerous landslides in hilly and mountainous areas, several more homes damaged or destroyed in central and south. Damages to roads and bridges from slides and floods enormous. Preliminary estimate of total storm damage to State and Federal highways near \$12,000,000 for 3 month period February-April, greatest single items Palisades slide (\$1,250,000) and sea wall at Oceanside (\$1,000,000). Cumulative damages from winter and spring storms to county roads alone in 35 northern and central counties estimated at over \$10,000,000. Preliminary American Red Cross report listed 20 homes destroyed by floods or slides in north and central during April storm; 2,332 homes damaged, damages to 419 other buildings. Flood damage to buildings, roads, and bridges in south estimated at \$165,000. 3 persons drowned in north; man in Corte Madera Creek, Marin County, another when canoe upset by wind at Anderson Reservoir, Santa Clara County, and woman found at beach at Santa Cruz. 6 persons injured by storm: 1 at Walnut Creek, 1 at Rockaway Beach, 2 at Norden, 1 at Los Angeles, and 1 Carlsbad. 6 persons killed in storm-contributed traffic accidents, and several injured.

See footnotes at end of table

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MAINE, MASSACHUSETTS, and NEW HAMPSHIRE Coastal areas	Mar. 31- Apr. 3				0	1	7	1	Wind, tides, and snow	4-day coastal storm was one of most destructive along central New England coast in 30 years, rivaled only by those of November 29-30, 1945, and January 26-29, 1933. Damage from Cape Cod to Portland confined to immediate coast. Beach erosion ranged from slight to heavy, some beaches receding as much as 50 feet. Wind and wave action completely denuded northern sections of several crescent-shaped beaches of sand, most of which was piled high along southern sections of those beaches. Miles of seawall and bulkheads either breached, undermined, or demolished. Most coastal roads inundated and littered with sand, rock, and debris. Communities connected to mainland by causeways marooned for several hours near times of high tide. Bulldozers, graders, and snowplows rushed into action to clear roads, parking lots, and boardwalks. Several dozen homes and other structures completely undermined, while hundreds of homes and cottages experienced basement or shallow, first-floor flooding. Sandblasting of cottages widespread at New Hampshire and northeastern Massachusetts beaches. East of Portland, Maine, high winds and heavy snow caused widespread damage to structures and communications as trees and utility poles toppled; all forms of transportation seriously hampered.
CALIFORNIA San Francisco International Airport	1	12:25 a.m.	1/4	65	0	0	4	1	Tornado	Damage confined to narrow path across air base. Loud, roaring sound. Extreme wind lasted only a few seconds, with rapid change in direction. Straight, narrow path. Damage confined to limited area. Some structural damage to hangar and 2 other buildings. 2 airplanes damaged and several parked automobiles damaged by flying debris. Some car windows appeared blown outwards. Funnel not observed because of darkness.
CALIFORNIA Turlock (2-1/2 miles south- east of), Stanislaus County	1	5 a.m.	2	20	0	0	3		Tornado and rain	Occurred at poultry farm, moving northeastward along narrow path through group of poultry buildings. Demolished fences, lifted 2 buildings in middle of 30 buildings, hurling them eastward. Deposited concrete piers and trusses on top of other buildings. Destroyed barn. Weather rainy. Funnel not observed because of darkness.
CALIFORNIA Laguna Beach, Orange County	1	9:30 a.m.	1/2	30	0	0	2		Waterspout	Waterspout appeared as swirling cloud column towering above 75-foot cliff. Swept inland along 6-block path, downing trees, tearing TV antennas off roofs, and tossing patio furniture as high as 100 feet in air; moved northeastward.
IOWA Cherokee County	1	2:50-3:15 p.m.	8	200	0	0	4	1	Tornado, rain, and hail	Destroyed farm buildings and cars and damaged buildings in towns of Mary Hill and Meriden. Storm moving northeastward, accompanied by heavy rain and hail.
	1									Minor storms also reported at Monticello and near Olebolt, Iowa; at Golden City and Kendricktown, Mo.; and near Madison, Nebr.
OREGON Scattered over most of State	1-2	Afternoon 1st- through 2d		*200- 300		1	4	2	Electrical, winds, rains, and hail	Lightning burned out a number of power transformers, particularly in Willamette Valley, a number of line fuses, and some lines and poles to cause service outages for brief periods to several hundred customers; at least 1 home badly damaged by lightning strike. Locally high, gusty winds blew down a number of trees, several across power- and telephone lines; 2 in Portland badly damaged 3 parked cars, hospitalized 1 person, and snarling powerlines. A few small farm buildings damaged by winds. Brief but heavy downpour in The Dalles together with clogged drains flooded several basements. Hail at Bend destroyed blooms on early flowers, but caused little other damage. Damage by wind \$10,000, by lightning \$18,000, by rain \$1,500, by hail \$500. Storm moved eastward.
CONNECTICUT and RHODE ISLAND Southeastern coastal areas	1-3					1	5		Wind and tides	Intense storm centered well to southeast of Nantucket resulted in period of damaging high tides, especially on 2d and 3d. 3 shore cottages demolished and seawall heavily damaged by high tides and wind at Old Lyme, Conn. About 100 houses reported flooded and/or evacuated along shore at East Haven, Conn. Tides in Narragansett Bay highest since hurricane "Carol" in 1954. Numerous houses and shore roads flooded and heavy erosion damage to beaches. Wind gusts of 50 m.p.h., reported by Navy at Newport, R.I. Strong wind gust blamed for car collision with bridge on Connecticut Turnpike near New Haven. Driver suffered minor injuries.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Arthur City and Powderly, Lamar County	2	Noon	10				4		Hail and wind	Moved northeastward into Oklahoma. Hardest hail- storm in area in many years. Damage mostly to composition roofs, automobiles, and windows. Lasted from 15 to 30 minutes, hail piled foot deep around school, size up to hens' eggs.
OKLAHOMA Beckham, Custer, Blaine, Canadian, Kingfisher, and Logan Counties	2	5-8 p.m.					4	4	Hail and electrical	Hail up to size of baseballs but mostly smaller than golfballs covered ground up to 4 inches deep along line stretching from Elk City, Beckham County through counties listed to Crescent, Logan County. Widespread damage to roofs, windows, cars, and crops resulted. Ex- tensive damage to crops did not develop, due to early stages of growth. Lightning destroyed home in Hennessey, estimated loss \$16,000.
TEXAS Corsicana (near), Navar- ro County	2	5:05 p.m.			0	0			Funnels aloft	2 funnels aloft reported by pilot.
TEXAS Wichita Falls and Wichita and Clay Counties	2	5:40-6:10 p.m.	16	300	1	14	6		Tornado, wind, rain, hail	Tornado moved east-northeastward. 2 homes com- pletely destroyed, 331 damaged, 17 house trailers damaged, also many businesses, cars, trees, win- dows, TV antennas, powerpoles. Injuries mostly minor, 2 serious, 1 killed by wind-borne object. Preceded by strong wind, followed at once by heavy rain and hail over 200-square mile area. Hail ranged in size "from mothballs to pine- apples." Radar warning and alert credited with saving many lives. Large funnel alternately dipped and soared, followed by trailer funnel; 2 funnels touched ground; witnesses reported spotting a third.
TEXAS Wichita Falls, Wichita County	2	5:50 p.m.			0	0			Funnel aloft	Moved eastward.
OKLAHOMA Comanche and Caddo Counties	2	5:55-6:35 p.m.	16	880	0	1	4	1	Tornado and funnel aloft	2 funnels, 1 from north and the other from south- west, appeared to join together over Elgin. Con- siderable debris was flying around, but main force of tornado remained aloft. Widespread damage resulted to roofs, porches, outbuildings, etc. As tornado moved northeastward, many farm- steads damaged near Fletcher and south and east of Cement. 1 minor injury resulted from flying glass east of Cement. Accounts from this loca- tion near end of path indicated there were 3 funnels, the 2 outside ones touching ground and the center funnel remaining aloft.
OKLAHOMA Woods County,	2	6:25 p.m.			0	0	1	1	Funnel aloft, hail, rain, wind	Funnel aloft 8 miles south of Waynoka sighted moving northeastward. Hail up to size of golf balls fell from Waynoka to Alva accompanied by strong winds and heavy rain. Slight damage re- sulted to flowers, shrubs and gardens.
TEXAS Stoneburg, Montague County	2	6:40 p.m.	15	500	0	1	4		Tornado, rain, and hail	Tornado moved northeastward. 2 homes and 3 barns destroyed, other homes, outbuildings and church damaged; - roofs off, windows out, furniture and clothing destroyed; farm equipment and machinery, cars and trucks, utility lines, and miles of fences damaged or destroyed, poultry killed. Buildings and cottages on nearby lake damaged. Accompanying rain and hail to baseball size.
TEXAS Bowie (10 miles northwest of), Montague County	2	6:45 p.m.			0	0			Funnel aloft	
TEXAS Carrollton, Dallas County	2	7:33 p.m.			0	0			Funnel aloft	
TEXAS Boyd (east of), Wise County	2	7:46 p.m.			0	0			Funnel aloft	Moved northeastward 50 feet off ground.
TEXAS Love Field (8 miles northwest of), Dallas County	2	8:30 p.m.			0	0			Funnel aloft	Moved eastward
KANSAS Saline County	2	8:35 p.m.			0	0			Funnel aloft	Funnel cloud sighted aloft 4 miles west of Salina.
OKLAHOMA Seminole (12 miles north- east of), Seminole County	2	9:15 p.m.	15	*3			4		Hail and wind	Hail up to size of golf balls accumulated up to 3 inches deep on ground. Extensive damage resulted to buildings, crops, etc. Strong winds ac- companied hail. Storm moved northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
OKLAHOMA Durant, Bryan County	2	9:50 p.m.			0	0			Funnels aloft	Highway Patrol sighted 2 funnels aloft, one just south and the other west-southwest of Durant, moving northeastward.
KANSAS Marshall County	2	10 p.m.				1			Electrical	After being struck by lightning large barn and contents of baled alfalfa and prairie hay burned 7 miles southwest of Frankfort. Man burned about face and hands by lightning.
OKLAHOMA Ada, Pontotoc County	2	P.m.				1	2	1	Electrical	Lightning struck TV antenna, burned out TV set, and seriously injured 1 person near antenna connection.
	2									Minor storms also reported near Inman, Kans.; and at Nashville, Tenn.
CALIFORNIA Fresno, Fresno County	3	10:12 a.m.	1/4	100	0	0	2	1	Funnel aloft, rain, hail, and wind	Funnel rather indistinct against black, swirling clouds, did not touch ground, observed by Weather Bureau Meteorologist. Light rain, followed by heavy hail and wind. Tore sheet-metal roof from warehouse, tar-paper roof from Government building, wrapped sheet-metal around powerline poles, and cut power- and telephone lines. Storm moved northeastward.
Florida West Palm Beach, Palm Beach County	3	10:30 a.m.			0	0			Funnel aloft	
ARKANSAS Marshall, Searcy County	3	12:15 p.m.	15	500	0	1	5	3	Tornado, funnel aloft, and hail	2 funnels observed, 1 of which did not touch ground. 3 houses destroyed, 1 damaged, and airplane hangar destroyed. Hailstones, from 3/4 to 3 inches in diameter reported, covered ground to depth of from 2 to 3 inches. 1 person injured by hail and extensive hail damage to roofs, windows, and signs. Storm moved eastward.
CALIFORNIA Merced Municip- al Airport, Merced County	3	2:40 p.m.			0	0			Funnel aloft, rain, and hail	Observed with thunder, rain, and hail. Funnel aloft moved eastward.
CALIFORNIA Travis Air Force Base (10 miles east of), Solano County	3	3:25 p.m.			0	0			Funnel aloft	Funnel extended down from cloud base approximately 1/3 to 1/2 distance to ground. Moved eastward.
ARKANSAS Haynes, Codey, and Brickeys (near), Lee County	3	4 p.m.	25	880					Wind and hail	Wind damaged 8 houses. Hail damage slight. Storm moved northeastward.
ARKANSAS Tyronza, Poinsett County	3	4 p.m.			0	0			Funnel aloft	
ARKANSAS Turrell, Crit- tenden County	3	4 p.m.			0	0			Funnel aloft	
ARKANSAS Independence, Jackson, Mon- roe, St. Francis, and Pulaski Counties	3	Afternoon							Hail	Stones up to 1/2 inch in diameter reported locally. Heaviest in St. Francis County where stones accumulated to depth of 2 inches in spots near Forest City.
TENNESSEE Memphis and vicinity, Shelby County	3	5 p.m.			0	0			Funnels aloft	2 funnel clouds aloft reported over east Memphis and 1 over Millington, moving eastward.
MISSISSIPPI Benton, Tippah, Alcorn, Union, Prentiss, and Itawamba Counties	3	7-8 p.m.	65	*35			4	4	Hail	Hailstorm over wide area, stones varying from 1/4 to 3/4 inch damaged roofs, windows, and vegetation. Occurred in connection with funnel cloud aloft. Storm moved southeastward.
MISSISSIPPI Tippah, Benton County	3	7:18-7:50 p.m.	40		0	0			Funnel aloft	Sighted between Ashland and Walnut by State police and followed; moved toward southwest for short time, then toward southeast.
ALABAMA Jefferson and Marion Counties	3	8:05-8:30 p.m.					5		Hail	Hailstorm moved southeastward over Birmingham; stones up to 2 inches in diameter at Westwood, 3 miles west of Birmingham Airport. Some hail not melted 24 hours later. Crops generally not

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
ALABAMA (Cont'd.)										grown in metropolitan area. Damage to roofs heavy. About 8:05 p.m., hail up to 3/4 inch fell at Winfield, Marion County.
GEORGIA Villa Rica, Carroll County	3	11:45 p.m.					3	1	Wind, hail, and rain	Wind uprooted trees which fell on house and automobile. Large hailstones caused damage to cars, windows, and roofs.
UTAH Western portion	3	P.m.							Snow	Streets and highways became snow-packed and slick as result of storm, with numerous minor traffic accidents reported. Highway 14 east of Cedar City closed for a time.
	3									Minor storm also reported at Henderson, Tenn.
Oregon Mostly coastal area	3-4		300- 350	*40- 50			4	2	Wind and high tides	Very heavy winds moving on to coast and inland for as much as 40 to 50 miles at some points occurred simultaneously with extremely high tides. Small amount of timber blown down, but damage mostly of minor nature to local coastal roads, a few dock installations and boats, some flooding of a few houses adjacent to normal tidelands. Evacuation of a few families required. All damage can be considered wind damage since high tides in themselves would have been no unexpected problem. Sizable portion of damage was scattering of hundreds of crab nets by winds. Storm moved eastward.
CALIFORNIA Fresno (southeast of), Fresno County	4	3:59 p.m.			0	0			Funnel aloft	Observed southeast of Fresno by Weather Bureau meteorologist. Funnel cloud developed from bottom of cumulonimbus, extended downward to within 1,000 feet of ground. Broke off from parent cloud and dissipated. Moved eastward.
NEBRASKA Seward (5 miles north and 2 miles west of), Seward County	4	4:10 p.m.	Short	Narrow	0	0	1	1	Tornado and funnels aloft	Moved northeastward. Touched ground in open field only. Other funnels observed aloft.
KANSAS Thomas County	4	5:15-5:20 p.m.			0	0			Funnel aloft	Funnel cloud moving northeastward observed to dip toward ground and then dissipate about 18 miles east of Colby.
KANSAS Jackson County	4	5:30 p.m.	1	Narrow	0	0			Tornado	Funnel cloud moving northeastward sighted momentarily a few miles northwest of Soldier. Shed and some fence damaged as it dipped to ground.
NEBRASKA Nebraska City, Otoe County	4	5:30-6 p.m.	7	Narrow	0	0	3	1	Tornado	Several funnels aloft also sighted. Storm moved north-northeastward.
KANSAS Dickinson County	4	6 p.m.							Wind and dust	Shift in wind to northwest during thunderstorm produced gust speeds of 75 m.p.h., at Abilene. Store windows broken, 2 large trees toppled, and many branches broken. Visibility reduced to zero for a short time but intense dust.
IOWA Western portion	4	Afternoon -evening					4	1	Wind and electrical	Wind and lightning responsible for numerous reports of damage to buildings and utilities.
OKLAHOMA Haileyville, Pittsburgh County	4					1	1	1	Wind	Strong winds blew pipe off ball park backstop, causing severe injury to 1 person.
	4									Minor storm also reported at Dunlap, Iowa.
MISSOURI St. Joseph, Buchanan County	4-5	Night					3		Wind	Wind hit gust to 60 m.p.h., at airport.
ILLINOIS Fayetteville, St. Clair County	5	12:30 a.m.			0	0			Funnel aloft	Cloud formation seen moving northeastward and roaring sound heard south of town. Earlier heard at Mascoutah and to Desloge, Mo.
COLORADO Eastern portion	5	All day							Wind and dust	Wind speeds of 30 to 35 m.p.h., prevailed in northeast, but 40 to 50 m.p.h., in Arkansas Valley area. Blowing dust reduced visibility to zero at times in Cheyenne, Kiowa, and Powers Counties. At Pueblo, 56 m.p.h., wind affected power- and telephone lines but no major damage reported.
MICHIGAN Entire State	5	All day					4	1	Wind	Strong gradient winds all day caused scattered small damage to plate-glass, tree limbs, bill boards, etc. Drive-In theater screen in St. Joseph County blown down, loss \$3,000.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
IOWA Woodbury, Ply- mouth, and Sioux Counties	5	10 a.m.- 1 p.m.	55	100	0	1	4	1	Tornado	Moved north-northwestward from near Oto to beyond Hospers. Much of time it was over open fields, but buildings damaged near Oto and near Remsen. 1 person injured by flying glass.
TENNESSEE Memphis, Shelby County	5	10:30 a.m.			1		1	1	Wind	Picket fence blown down, landed on and killed elderly woman.
MISSOURI Vichy (30 miles north- east of), Gas- conade County	5	11:35 a.m.			0	0			Funnel aloft	
MISSOURI Columbia (30 miles south- east of)	5	11:45 a.m.						2	Hail	1 inch hail.
MISSOURI Fulton, Calla- way County	5	Late a.m.	1/2	200			4		Wind, hail, electrical, and rain	Business building badly damaged. House trailer overturned. Several roofs damaged. Witnesses heard roaring noise and saw very dark cloud. Storm moved southeastward.
ILLINOIS Central third	5	1-4 p.m.							Wind and electrical	Widespread heavy thunderstorms, with scattered wind damage to buildings and overhead wires.
MISSOURI Bellevue, Iron County	5	1:16 p.m.					3		Hail and wind	Winds 50 m.p.h.; hail 1 inch.
IOWA Ayrshire (6 miles south of), Palo Alto County	5	2 p.m.			0	0	1	1	Hail and tornado (suspected)	Heavy hail, but little damage reported. One re- port of funnel over harvested cornfield; no damage. Storm moved northward.
ILLINOIS St. Clair, Clinton, and Fayette Counties	5	2:20 p.m.	75	100	1	7	5		Tornado	Partly intermittent northeastward path from New Athens to west of Vandalia. Injuries and heaviest damage at Fayetteville where summer cottages destroyed. Hit Breese at 2:55 p.m.
MISSOURI Brewer and Claryville, Perry County	5	2:40-3 p.m.	1		1	1	2		Tornado	Large plate-glass window blown out, man badly cut. Several farm buildings damaged. Lineman electrocuted while repairing lines after storm. Funnel dipped to earth briefly 1 mile north of Brewer. Tornado moved northeastward.
ILLINOIS Randolph County	5	3:05 p.m.	5	100	0	0	4		Tornado	Damage to 8 houses in 3 parts of Chester. Went aloft over Steeleville. Tornado moved north- eastward.
MISSOURI Chaffee, Scott County	5	3:45-4 p.m.			0	0			Funnel aloft	Witnesses heard "roaring sound".
ILLINOIS Jackson and Franklin Counties	5	4:10 p.m.	20	100	0	6	5		Tornado	Damaged or destroyed 70 homes on north side of Sesser. Reports of funnel cloud and some dam- age earlier at Vergennes and Elkhart. Tornado moved northeastward.
ILLINOIS Sibley (east of), Ford County	5	4:25 p.m.	1/2	80	0	0	3		Tornado	Struck 1 farmstead; moved northeastward.
MISSOURI Jefferson City, Cole County	5	4:30 p.m.					3		Wind	Minor damage to trees and roofs. Wind hit gusts to 62 m.p.h., at airport.
INDIANA Rockville, Parke County	5	6:15 p.m.					3	1	Wind	Tree blown down and fell on house. Air base re- corded winds up to 93 m.p.h.
INDIANA Valparaiso, Porter County	5	6:23 p.m.			0	0			Funnel aloft	Ground Observer Corps at Valparaiso reported funnel cloud 5 miles southeast of Valparaiso moving northeastward.
TENNESSEE Nashville and vicinity, Davidson County	5	6:30 p.m.						1	Wind	Windows blown out of 3 business houses; several trees downed damaging 1 car and powerlines.
INDIANA Valparaiso (6 miles north- east of), Porter County	5	6:45 p.m.	**80	80	0	0	3	1	Tornado	Steel corn crib blown over; granary moved 2 feet off its foundation; roof of henhouse hurled against another granary which collapsed. Large branches carried 60 feet. Darkness and wind reported by occupant of farmhouse. Tornado moved northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KENTUCKY Hopkins County	5	7:30 p.m.					4		Wind	Trees uprooted, signs and television antennas blown down, and roof damage to several buildings reported. Damage to utility lines considerable.
INDIANA Spiceland (1/2 mile east and 1/2 mile south of), Henry County	5	8:30 p.m.	**50	50	0	0	4	1	Tornado and rain	Garage and tool shed collapsed. Rain, noise, and darkness accompanied destruction. Storm moved northeastward.
ALABAMA Colbert and Lauderdale Counties	5	9 p.m.	18	100	1	0	5		Tornado	Tornado began 3 miles south of Leighton moved northeastward passing southeast of Spring Valley, 3 miles north of Creek community, east of Wheeler Dam, and lifted near Rogersville, Lauderdale County.
INDIANA Marion (8 miles east of), Grant County	5	9 p.m.	**30	5	0	0	3	1	Tornado	Roof of 2-story concrete-block building torn off and parts of walls caved in. Swath cut through woods 1/2 mile to east about 15 feet wide and 25 feet from ground. Tornado moved eastward.
ALABAMA Lawrence and Limestone Counties	5	10 p.m.	25	100	0	0	4		Tornado	Moved northeastward from Town Creek, Lawrence County, to 1 mile east of bridge on Elk River in Limestone County, and last reported hitting in Clement community, Limestone County. Path of this tornado about 4 miles southeast of one beginning near Leighton, Colbert County.
ALABAMA Limestone County	5	10:15 p.m.	15	50	0	0	5		Tornado	Began west of Athens, moved northeastward to Thach.
ALABAMA Madison County	5	10:30 p.m.	--	Narrow	0	0	4	1	Tornado	Funnel cloud heard passing over Madison and shortly thereafter it dipped in northwestern edge of Huntsville, about 7 miles away; moved northeastward.
KENTUCKY Boone County	5	10:35 p.m.				1	4		Wind	Strong winds during severe thunderstorm overturned barn, threw house in pond, wrecked 2 cottages, and uprooted several roofs and small buildings.
ALABAMA Cullman and Morgan Counties	5	11 p.m.	8	200	0	0	5		Tornado	Moved northeastward from Cross Rock and Vinemont to east of Eva, in Morgan County.
ALABAMA Cullman and Morgan Counties	5	11:20 p.m.	7		0	0	4		Tornado	Moved northeastward from Ebenezer to Union Hill in Morgan County. Passed 2 miles south of Lacon, and hit southeast edge of Cold Springs. House, which failed to disintegrate completely, reported shoved 2 feet into ground. Path of this storm about 3 miles northwest of the one reported at 11 p.m.
KENTUCKY Clark County	5	P.m.					4	3	Wind	Windstorm sweeping across county caused damage to several properties, including destruction of at least 2 barns. Tree limbs blown down, roofs, display signs, and utility lines damaged. Considerable damage reported to tobacco cotton covering newly sown tobacco beds.
KENTUCKY Jefferson County	5	P.m.					3		Wind	Winds with gusts to 52 m.p.h., caused damage to a building, blew down several concession booths, uprooted a few trees, and damaged some powerlines.
ALABAMA Morgan County	5	Evening	Short	100	0	0	3	1	Tornado	Brief dip of tornado on farm southeast of Decatur destroyed barn. Tornado moved northeastward.
KANSAS Seward County	5								Wind	Gusts of wind reaching 85 m.p.h., hit Liberal. Resulting damage included a car badly damaged by falling light pole, doors blown from airport hangar and metal hangar demolished, panes of glass blown from store fronts, and roof damage to some buildings at fair grounds.
	5									Minor storms also reported at Milltown and Rensselaer, Ind.; Clinton and Marshalltown, Iowa; in Boyle and Mercer Counties, Ky.; in Van Buren County, Mich.; at Benton, Commerce, Rolla, St. Clair, Sullivan, Warrenton, and in eastern Lincoln County, Mo.; and in Roane County, Tenn.
SOUTH DAKOTA Statewide	5-6	Early a.m. 5th-early a.m. 6th				2	3		Rain and snow	General rain began changing to heavy, wet snow, first in northern Black Hills then across State. Traffic stopped in a few places. Snow unusually deep in western Grant County and southern Roberts County, where a number of travelers marooned overnight. Cars buried in largest drifts. Power- and telephone lines downed near Britton, Stickney, and Pukwana. Snow thawed from highways quickly later on 6th.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
WISCONSIN Northern Portion	5-6	Night				2	4		Snow, wind, and ice	High winds, ice, and wet snow downed telephone and electric lines, damaged trees and blocked highways. Barn near Antigo blown down. Ice to 6 inch diameter accumulated on high lines in northeast division.
ALABAMA Marshall and Jackson Counties	6	12:03 a.m.	28	50- 100	0	1	5		Tornado	Moved northeastward from Albertville to Section and Macedonia in Jackson County. Unlike most tornadoes peculiar to Alabama and Georgia, thunderstorms which spawned most of tornadoes on night of 5th and 6th were accompanied by very frequent lightning.
GEORGIA Ocilla and Osierfield, Irwin County	6	4 a.m.					4	1	Wind and hail	Greatest damage in Ocilla when roofs damaged, antennas blown down, trees uprooted, and plate- glass windows broken. Large warehouse unroofed. Hail caused minor damage to screens. Storm moved northeastward.
GEORGIA Moultrie (10 miles east of); Colquitt County	6	7 a.m.	4	50	0	0	3	3	Tornado (suspected)	3 stock barns, 2 tobacco barns, and 1 residence damaged or destroyed. Trees uprooted and power- lines blown down. Storm moved northeastward.
MICHIGAN Upper Peninsula	6	All day					3	1	Snow and wind	10 to 12 inches of snow with high winds caused scattered damage.
VIRGINIA Smithfield, Isle of Wight County	6	5:45 p.m.			0	0	3		Tornado (suspected) or wind	Unconfirmed tornado in basically rural area damaged 2-story residence extensively - windows blown out and chimneys damaged. Other damage in area included wrecked smokehouse, garage, and chicken- house as well as uprooting of several mature trees. Storm moved northeastward.
VIRGINIA Newport News	6	6:45 p.m.	1	250'	0	0	5		Tornado	Funnel cloud dipped at Newport News. All except one observer talked with did not believe that funnel touched ground. However, second floor of brick commercial building observed to have exploded. About 79 business establishments damaged, including city-owned property and utilities with 6-square block area. Storm moved northeastward.
	6									Minor storms also reported in Cleveland County, N. C.; near Liberty, S. C.; and in Chattanooga area, Tenn.
CONNECTICUT and RHODE ISLAND	6-7	Late a.m. 6th - late p.m. 7th							Rain	Heavy precipitation of 1.50 to 2.50 inches brought major rivers to near flood stage and caused some flooding along minor streams in both States. Fast rise along section of Salmon Brook forced evacuation of 14 families in Granby, Conn., scene of disaster in floods of August 1955. Landslide onto Turnpike in eastern Connecticut halted east-bound traffic for 1 hour. Many homes and streets flooded by heavy rains and high tides in southern and coastal Rhode Island.
NEW ENGLAND Northern and central portions	6-7						4	1	Rain and snow	Heavy rain in Massachusetts flooded low meadows in Berkshire area, and flooded many cellars in central and southeastern Massachusetts. Some road washouts in New Bedford area. Heavy, wet snow caused widespread but mostly minor outages in phone and power services as laden trees sagged and fell onto lines. Line damage heaviest in central and southern Vermont and in Franklin County, Maine. 15 inches of snow at Sugarloaf Mountain, Maine.
CALIFORNIA Oceanside (10 miles south of), San Diego County	7	10:15 a.m.			0	0			Funnel aloft	Pilot observed funnel cloud 5 miles off shore, 10 miles north of Oceanside.
CALIFORNIA Coalinga, Fresno County	7				0	0			Funnel aloft and electrical	Report from newspaper clipping. Residents north of town observed heavy, black, funnel-shaped cloud in direction of Los Gatos Canyon. Funnel tapered down to point like elephant's trunk. Accompanied by flashes of lightning.
	7									Minor storm also reported at West Jordan, Utah.
TEXAS Plainview (15 miles east- northeast of), Floyd County	8	4 p.m.			0	0	1	1	Dust devil	Moved northeastward over open country.
TEXAS Happy area, Swisher and Ran- dall Counties	8	4 p.m.	2	100	0	0	1	1	Tornado	Moved northeastward, touched ground for a moment, lifted and dissipated.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NEW YORK Southeastern portion	8	Late af- ternoon -evening						2	Wind	Winds associated with influx of colder air tore roof off of school under construction at Yorktown and did some other damage in area. No estimate of dollar value available.
TEXAS Waxahachie (8 miles south- west of) Ellis County	8	9:15 p.m.			0	0			Funnel aloft	Moved northeastward.
	8									Minor storms also reported in Amarillo and Canyon areas, Tex.
LOUISIANA East Feliciana, St. Helena, Tangipahoa, and Washington Parishes	9	8-11 a.m.	60	*20			5	4	Wind, hail, and rain	Hailstorm reported at Clinton, Kentwood, Greensburg, and Amite. Hail and high winds over most of Washington Parish. Apparently highest winds about 3 miles south of Franklinton estimated at 75 m.p.h. 15 to 20 barns demolished, with some livestock killed and feed in barns ruined by heavy rains. A few homes lost roofs and some windows smashed by hailstones. Storm moved east-southeastward.
FLORIDA Okahumpka, Lake County	9	Afternoon							Electrical	15 cattle killed under tree hit by lightning.
FLORIDA Mexico Beach, Bay County	9	Afternoon	Short	Narrow	0	0			Waterspout	Waterspout moved ashore, damaging several buildings before dissipating.
TEXAS Fannin and Hunt Counties	9	4:30 p.m.	20	*5			4		Hail	Occurred at Leonard, Trenton, Wolfe City, and Commerce. Leonard hardest hit, 90% of roofs damaged, windows and windshields smashed, 6 businesses damaged by water after hail, some golf ball size, broke skylights. Hail piled up ankle deep, remained on ground all night. At Wolfe City, many roofs damaged and windows broken.
TEXAS Birthright, Hopkins County	9	6:30 p.m.	3	330			5		Wind, hail, and rain	Violent, twisting type of wind damaged barns and outbuildings, house roofs, powerlines, and TV antennas. Large barns and garage picked up and scattered, house moved off foundation. Windows damaged by accompanying hail, size of hens' eggs. Interiors damaged by rain. Storm moved north-northeastward.
GEORGIA Terrell and Fulton Counties	9	P.m.					4	3	Wind and rain	Industrial plant under construction heavily damaged and other buildings damaged by wind at Dawson. Newly planted crops damaged by heavy rains. Widespread but minor wind damage in Atlanta same night when gusts reached 54 m.p.h.
TEXAS Leonard (1-1/2 miles west of), Fannin County	9	Night			0	0			Funnel aloft	
	9									Minor storm also reported at Sabine Pass, Tex.
	10									Minor storm reported at Lake Stevens, Wash.
CONNECTICUT and RHODE ISLAND	11	All day					4		Snow and rain	Notably heavy snowfall for so late in season resulted from storm moving from Hatteras to Nantucket. From 3 to 7 inches of snow fell in Connecticut, heaviest in southern half, and up to 8 inches in northwestern Rhode Island. 5 inches at Weather Bureau at Hartford and 3.7 inches at Weather Bureau at Providence heaviest on record for so late in season. Storrs, Conn., recorded heaviest 24-hour snowfall for April in 37 years of snow records with fall of 7 inches. Wet snow caused collapse of factory roof at Woonsocket, R. I., with damage estimated at \$15,000. Scattered telephone line breakage in southern Connecticut. Deep slush on highways made driving hazardous; a few minor skidding accidents occurred.
COLORADO Arapahoe County	11	1:05 p.m.			0	0			Funnel aloft	Pilot reported funnel cloud 5 miles southwest of Lowery Airfield, which did not touch ground.
NEW ENGLAND Northern and central portions	11	P.m.			3	3	4	1	Snow and wind	Late-season snowstorm caused many minor traffic accidents. 3 injuries and 1 death in Massachusetts and 1 death each in Vermont and Maine said to be due to slushy highways. Up to 6 inches of heavy, wet snow fell in southeastern portion, straining building roofs with the weight. Blimp damaged by weight of snow at South Weymouth, Mass. Winds grounded freighter near Houghs Neck, Mass. Wind also caused minor roof damages in Massachu-

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
NEW ENGLAND (Cont'd.)										setts coastal areas. Power failure halted Metro- politan Transit Authority trains in Boston area in early a.m. on 12th due to water from melting snow. Some phone and powerlines similarly outed in eastern Massachusetts.
MISSOURI Lockwood, Dade County	12	Afternoon			0	0	2		Dust devil	Blew several panes out of greenhouse.
TEXAS Penwell, Ector County	13	3 a.m.			0	0			Funnel aloft	
OKLAHOMA Pond Creek, Grant County	13	5:40 p.m.			0	0			Funnel aloft	Funnel aloft moving eastward sighted just south of Pond Creek. This was a cold air funnel.
OKLAHOMA Kay, Noble, Pawnee, and Osage Counties	13	6 p.m.			0	0			Funnels aloft	Several funnels aloft sighted west and south of Ponca City and north of Pawnee. These vortices formed in clouds over cold air.
TEXAS Lufkin (8 miles south- east of) An- gelina County	14	2:15 a.m.	Short	Narrow	0	0	3		Tornado	In Old Homer community, 2 houses damaged, 2 sheds blown away, and trees uprooted.
ALABAMA Monroe County	14	8 a.m.			0	0			Funnel aloft	Plane at 7,000 feet reported funnel cloud aloft 30 miles northwest of Evergreen.
FLORIDA Bereah, Polk County	15	Near noon		300	0	7	4		Tornado	Several residences demolished; others greatly damaged along storm path. Tornado moved eastward.
FLORIDA Mullet Key (Tampa Bay entrance)	15	Near noon			4	0			Wind, Tornado (suspected), rain, and hail	Violent squall with winds near 80 m.p.h., hit Mullet Key then moved eastward across Tampa Bay to Sun City, Ruskin, and Wimauma area, leaving destruction and debris pattern not unlike that of tornado, lifting and lowering along path. Heavy rain and some hail reported along storm path. Before heaviest part of storm, a B-47 bomber exploded and crashed into Tampa Bay, killing all 4 members of crew.
FLORIDA St. Augustine area, St. Johns County	15	12:20 p.m.	3	75	0	8	5		Tornado	Storm affected Ponce DeLeon Heights and Santa Rosa subdivision. Funnel lifted and lowered along path. 6 residences destroyed; 15 others damaged; 12 other buildings damaged or destroyed along storm path. Tornado moved eastward.
FLORIDA Ft. Pierce, St. Lucie County	15	1:09 p.m.	13	*1	0	*18	6		Tornado	Greatest damage concentrated along path 1/4 mile wide. Funnel apparently lifted and lowered along path. 28 homes destroyed and 63 others damaged. Over 130 other buildings damaged or destroyed. Tornado moved east-southeastward.
FLORIDA Ft. Myers, Lee County	15	3:30 p.m.			0	0			Waterspout	
GEORGIA Riddleville, Washington County	15	4:30 p.m.	3/4	200	0	0	3	1	Tornado	Tornado moving north-northeastward destroyed 3 small unoccupied houses, 1 barn and damaged 2 other houses. Funnel observed and sound of storm described as that of train or low flying jet aircraft.
	15									Minor storm also reported at Atlanta, Ga.
NORTH CAROLINA Eastern portion	15-16						4		Wind, rain, and high tides	Gulf low-pressure storm crossing Georgia into Carolina coastal waters caused prolonged easterly winds producing tides 4-1/2 feet above normal in New Bern area; about one-fourth of total damage from this cause. Elsewhere over eastern North Carolina, spotted heavy rains and strong winds did scattered, mostly minor, damage.
	16									Minor storms reported at Dupuyer, Mont.; and in Greenwood, Richland, and Sumter Counties, S. C.
TEXAS West Point (near), Lynn County	17	11:14 a.m.			0	0			Funnel aloft	
TEXAS Flagg, Castro County	17	12:20 p.m.			0	0			Funnel aloft	

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					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Lubbock (15 miles south of), Lynn County	17	1:56 p.m.			0	0			Funnel aloft	
TEXAS Hondo (south- west of), Medina County	17	8 p.m.			0	0			Funnels aloft	2 funnels reported.
TEXAS Colorado City (15 miles northwest of), Scurry County	17	8:05 p.m.			0	0			Funnel aloft	Moved southeastward.
TEXAS Floydada, Floyd County	17				0	0			Funnel aloft	Moved northeastward.
	17									Minor storm also reported at Acme, Wash.
TEXAS Between Sey- mour and Dun- dee, Baylor and Archer Counties	18	11:30 a.m.			0	0			Funnels aloft	2 funnels reported
KANSAS Finney and Kearny Counties	19	2-3:20 p.m.	40	*3-5	0	0			Hail and funnel aloft	Hail fell intermittently over northern Kearny and much of Finney Counties. Damages local and variable depending on size and intensity of hail. Funnel aloft sighted over northern Kearny County. Storm moved south-southeastward.
KANSAS Clay, Cloud, and Republic Counties	19	4-4:30 p.m.	35	*3			5	4	Hail	Occasional hail damage from southern Republic County across northeastern Cloud County and into northern Clay County. Main damage near Clyde where roofs, paint, windows, automobiles, shrubs, and trees all suffered losses. Some crop dam- ages estimated at 70 to 100 percent. Some hail- stones as large as walnuts in Clyde vicinity. Storm moved south-southeastward.
KANSAS Comanche County	19	5-5:30 p.m.	3	*2	0	0	3	4	Hail, tornado, and funnel aloft	Most hail and damaging tornado occurred 5 miles north and 2 west of Protection. Hail mostly less than 1/4 inch in diameter, but gathered in drifts to depths of 10 inches. Tornado came to ground only momentarily and damaged machine shed and a garage. Funnel cloud observed 13 miles southeast of Protection. Crop damage from hail. Storm moved eastward.
TEXAS Sunray area, Moore County	19	6 to 7 p.m.	6	*2			4	4	Hail	Hail size of hens' eggs, covered ground. Storm moved southward.
TEXAS Dumas (6 miles north- west of), Moore County	19	7 p.m.			0	0			Funnels aloft	2 funnels reported moving eastward.
OKLAHOMA Western half	19	7 p.m.- midnight				2	5	4	Wind, rain, hail, and electrical	Squall line moved southeastward across State, with winds up to 60 to 70 m.p.h., reported at many points, especially in northwest and south- west. Widespread damage and destruction re- sulted to roofs, windows, outbuildings, wind- mills, TV antennas, trees, utilities, etc. Greatest single loss estimated at \$30,000 to two 8,000 bushel steel grain storage tanks and other buildings and equipment at grain elevator in Brinkman, Greer County. 2 minor injuries resulted when roof blown off cafe filled with people in Fletcher, Comanche County. Hail up to 1 inch in diameter reported at scattered points. Several lightning strikes also caused damage and killed cattle.
KANSAS Shawnee County	19	7:30 p.m.							Hail and wind	Golf-ball-sized hail with rather strong winds caused some damage in area from Topeka north to county line. Storm moved eastward.
KANSAS Miami and Johnson Counties	19	7:45-7:55 p.m.			0	0	3		Funnel aloft, and electrical	Funnel cloud observed near Miami-Johnson County line, west of Stillwell. Loud roar also re- ported heard. House in Paola struck by lightn- ing, with \$1,000 damage. Storm moved northeast- ward.
TEXAS Amarillo area, Potter County	19	8:05 p.m.					3		Hail, wind, and tornadoes (suspected)	Hail size of peas to quarters, winds to 75 m.p.h., damaged automobiles, windows, and other prop- erty. 2 unconfirmed twisters reported north of Amarillo.

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					Killed	Injured	Property (exclusive of crops)	Crops		
COLORADO Southeastern portion	19	9:45 p.m.			0	0			Funnel aloft	Pilot reported funnel cloud 50 to 60 miles east-southeast of La Junta at cloud base, did not touch ground
TEXAS Rochester, Haskell County	19	11:40 p.m.					3		Wind	Wind estimated at 80 m.p.h., bent and damaged TV antennas, overturned trailers, ripped dead limbs from trees, side of gin building torn away, roofs and outbuildings damaged or blown away.
TENNESSEE Cleveland, Bradley County	19	P.m.				1		1	Electrical	Lightning struck and knocked off house chimney, damaging an automobile below. Man working under truck nearby knocked unconscious and suffered minor hand burn.
KANSAS Wyandotte County	19	Late evening							Electrical	Lightning struck electric substation in Kansas City, putting out of service three 15,000-volt feeder lines for 23 minutes.
	19									Minor storms also reported near Columbus and at Nebraska City, Nebr.; and near Yocumtown, Pa.
TEXAS Wichita Falls, Wichita County	19-20	11:30 p.m. - 2 a.m.	200	*150			4		Wind and rain	Began as blinding duststorm about 11:15 p.m. Peak wind gust 59 m.p.h., at airport at 11:30 p.m. 2 heavy planes blown around, hit 2 others. Roofs of several homes and businesses damaged, rain damage to interiors; windows and powerpoles broken. Storm moved southeastward.
	19-20									Minor storm also reported at Archer City, Tex.
TEXAS Breckenridge area, Stephens County	20	12:15-1 a.m.	200	*150			4		Wind	Wind estimated at 50 m.p.h., with gusts to 70 m.p.h., blew down drive-in screen, smashing 3 cabins. Gasoline plant damaged. Storm moved southeastward.
TEXAS Snyder (9 miles north of), Scurry County	20	12:22 a.m.			0	0			Funnel aloft	Moved northeastward.
OKLAHOMA Harjo, Pottawatomie County	20	12:30 a.m.			0	0			Funnel aloft	Funnel aloft sighted moving southeastward.
OKLAHOMA Seminole, Seminole County	20	12:30 a.m.			0	0			Funnel aloft	Funnel aloft reported northeast of Seminole, moving southeastward.
TEXAS Abilene (13 miles south- east of), Tay- lor County	20	12:30 a.m.			0	0	3		Tornado	Tornado moving southeastward destroyed granary partially filled with 300 bushels of oats; slight damage to farm building.
TEXAS Nocona, Monta- gue County	20	1 a.m.	2	400	0	1	3		Tornado and hail	House moved from foundation, chimney destroyed, trees damaged or uprooted, TV antennas damaged, shingles blown off houses, flower beds and gardens damaged by accompanying hail. 1 person injured when blown from porch. Strong dust-laden wind. Storm moved southeastward.
TEXAS Ranger, East- land County	20	1 a.m.	200	*150			4		Wind	Church heavily damaged, trees uprooted, TV antennas and powerlines damaged. Storm moved southeastward.
TEXAS Oak Creek Lake (near Black- well), Nolan County	20	1:30 a.m.	200	*150			4		Wind	Wind to 65 m.p.h., picked up and badly damaged large enclosed boathouse and contents, overturned floating boat dock, and sank 18 boats which were later salvaged. Storm moved southeastward.
TEXAS Wilson (5 miles south- east of), Lynn County	20	1:38 a.m.			0	0			Funnel aloft	
TEXAS Ft. Worth, Tarrant County	20	2-2:30 p.m.	200	*150			4		Wind	At Meacham Field, 5 light aircraft overturned or broke loose from moorings. 2 wrecked, 3 damaged but repairable. Hangar roof damaged. Store windows in city broken, roofs damaged, signs blown down. Storm moved southeastward.
TEXAS Possum Kingdom Lake, Palo Pinto County	20	Early a.m.	200	*150			4		Wind	25 to 35 small craft sunk and cabin roofs damaged at resorts. Gusts estimated to 80 m.p.h. Storm moved southeastward.
WYOMING Statewide	20	6 a.m.-6 p.m.					4	1	Wind	General windstorm. Damage to TV towers, roofs, small buildings, trailers, etc.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories +		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KENTUCKY Logan County	20	2:20 p.m.			0	1	4		Tornado	Small tornado southwest of Bowling Green touched ground 1 time and moved northward. House and barn blown over.
KENTUCKY Hopkins County	20	2:30 p.m.				1	4		Wind, hail, and rain	Barn, carport, and garage blown down, several barns and other buildings unroofed, and many limbs blown from trees. Damage to power- and telephone lines widespread. Hail accompanied wind, and rain in some areas.
ARKANSAS Winchester, Drew County	20	3 p.m.			0	0		1	Tornado	Several houses damaged.
INDIANA Delaneys Creek, (10 miles north of Salem), Wash- ington County	20	4 p.m.	1/2	100	0	0	3	1	Tornado	Workshed demolished; roof ripped off house; trees blown down. Tornado moved northward.
KENTUCKY Madison County	20	4:30 p.m.			0	0	4		Tornado	Small tornado ripped through area about 15 miles southeast of Richmond. Large tobacco barn destroyed. Tin from roof carried about 1/2 mile. House badly damaged and minor damage to other houses. Many trees within 3-mile radius uprooted.
TEXAS Sanford, Hutchinson County	20	4:57 p.m.			0	0			Funnel aloft	
TEXAS Amarillo, Potter County	20	6:30 p.m.			0	0			Funnel aloft	Moved eastward across field.
MISSISSIPPI Florence (2 miles west of), Rankin County	20	7:45 p.m.	3-5	25	0	0	4	1	Tornado	Small tornado moving northeastward touched ground occasionally, but mostly at tree-top level; some outbuildings damaged and some roof damage to homes
PENNSYLVANIA Schuylkill Haven, Schuyl- kill County	20	11 p.m.					4	1	Electrical	Lightning fired barn, destroying structure as well as 800 bales of straw and several pieces of farm machinery.
	20									Minor storms also reported at Imogene, Iowa; and at Terry, Mont.
OREGON Scattered areas	20-22				1		5	2	Electrical storms ac- companied by locally heavy rains	Scattered lightning storms damaged several power and telephone installations, causing many service interruptions. Most damage due to flooding from accompanying heavy rains. Some bridge and dam construction in progress on western streams suffered moderate damage, but principal losses occurred along McKay Creek in Pendleton area. Recent home developments in lowland under McKay dam flooded. Approximately 40 homes flooded, with several families evacuated. Damage by lightning \$5,000, by rain \$115,000, loss of the 1 life attributed only indirectly to flooding. Storm moved eastward.
OKLAHOMA Randlett (4 miles south- east of), Cotton County	21	7:31 a.m.			0	0			Funnel aloft	Weather Bureau in Wichita Falls, Texas, sighted funnel 15 to 20 miles north-northeast.
FLORIDA West Palm Beach (near), Palm Beach County	21	10 a.m.			0	0			Waterspout	Waterspout 13 miles east, remained at sea.
OKLAHOMA Pond Creek, Grant County	21	12:30 p.m.	1	25	0	0	1	1	Tornado	Tornado traveled aloft east-northeastward from near Nash to near Jefferson. It struck ground in open field for short time northwest of Pond Creek.
TEXAS Dallas and Cedar Hill, Dallas County	21	3:28-6:15 p.m.	10	1000			4		Wind and hail	At Dallas, scattered minor damage mostly caused by gusty winds; at Cedar Hill, 2 homes and 2 schools damaged inside and out; 75 percent of town suffered broken windows and roof damage. Church encampment had 31 buildings damaged. Storm moved southeastward.
OKLAHOMA Verden (10 miles north of), Grady County	21	3:35 p.m.			0	0	1	1	Tornado (suspected)	Tornado reported moving northeastward. No confirmation received. Evidently struck in open country.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Fort Worth (12 miles north- west of), Tarrant County	21	3:55 p.m.			0	0			Funnel aloft	
OKLAHOMA Chickasha, Grady County	21	4:05 p.m.			0	0	3	3	Funnel aloft, hail, and rain	Funnel aloft dipped out of clouds twice just northwest of Chickasha. Hail up to 3/4 inch in diameter covered ground, resulting in damage to roofs, shrubs, and gardens.
OKLAHOMA Chickasha, Grady County	21	4:05 p.m.	Short	Narrow	0	0	1	1	Tornado	Tornado touched ground momentarily just south of Chickasha.
TEXAS Ellis County	21	4:45-5:30 p.m.	20-1/2	425	0	18	5	4	Tornado, hail, and wind	Several houses destroyed, barns and outbuildings destroyed or damaged, trees twisted, fence posts downed. Turkey hatchery at Buena Vista with 7,000 young turkeys destroyed. Hail size of baseballs broke many windows. Tornado moved southeastward from 1/2 mile south of Mid- lothian to Maypearl to near Forresteron. Wind and hail damage at Italy, Avalon, and Forresteron.
TEXAS Limestone, Mc- Lennam, Falls, and Hill Counties	21	5:45-6:30 p.m.	20	*10			5		Wind	Gusts to 75 m.p.h.; plate-glass windows blown in. Hail as "big as baseballs" damaged about 25 houses at Ben Hur. Occurred at Prairie Hill, Ben Hur, Otto, Hubbard, and Marlin. Storm moved southwestward.
TEXAS Marlin (near), Falls County	21	5:45-6:30 p.m.			0	0			Funnel aloft	Unconfirmed reports indicate 3 funnels moving northward. Seemed to pick up debris off ground.
TEXAS Bremond (near), Robertson County	21	7 p.m.			0	0			Funnel aloft	
TEXAS Robertson and Limestone Counties	21	7:15-7:35 p.m.	25	*3-4			°5		Wind and hail	A number of small buildings blown over, destroyed or badly damaged; roofs damaged and blown off, powerlines and trees blown down. Preceded by large hail, some baseball size, damaged automo- biles, windows, and roofs. 1 giant hailstone went through corrugated iron roof. 1 hailstone measured 17-1/2 inches in circumference. Most of Bremond area tomato crop ruined. Occurred in Valley Junction, Bremond, Calvert, Ben Hur, and Stranger communities. Storm moved south- westward.
TEXAS Wichita Falls (15 to 20 miles north- east of), Clay County	21	7:31 p.m.			0	0			Funnel aloft	
TEXAS Burton, Wash- ington County	21	8:30 p.m.			0	0			Funnel aloft	Moved from north to east for about 2 minutes.
TEXAS Washington County	21	8:30-9 p.m.	10	200			4	3	Wind and hail	Occurred in Gay Hill, Burton, Greenvine communi- ties. Blew down outhouses, unroofed homes, de- stroyed barns, uprooted trees. Hail broke win- dows, damaged roofs, beat paint off 1 house. Most crops beat down recovered after a few days. Storm moved southward.
GEORGIA Southern half	21	P.m.					5	5	Hail, wind, and rain	One of most severe and widespread hailstorms to hit Georgia in many years. Hail reported in over 30 counties, with about 10 counties in south central hardest hit. Damage to property estimated at \$100,000 in Fitzgerald area alone. Newly planted crops damaged extensively over large areas, but would have been much worse except for late planting this year. Size of hailstones ranged from 1/4 to 2 inches in diameter. Heavy rains and high winds added to damage to property and crops.
OKLAHOMA Tulsa, Tulsa County	21	P.m.			1	1	3	1	Electrical, wind, and rain	Lightning struck 5 houses, causing fire damage. Strong winds blew man from tree, causing injury. small stream swollen by heavy rains caused foot- bridge to collapse, resulted in drowning of one man.
	21									Minor storms also reported at Helena, Joplin, and Salisbury, Mo.; Inola, Okla.; and Nacogdoches, Tex.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
MONTANA Carbon, Still- water, Sweet- grass, and Park Counties	21-23								Snow	One of heaviest snowstorms of record. Total fall 55 inches at Red Lodge, 48 inches at Nye, 61 inches at Nye Mount Mine, and 72 inches at Mystic Lake. Work crew marooned on road out of Mystic Lake for 33 hours.
GEORGIA Dawsonville, Dawson County	22	8:30 a.m.	Short	Narrow	0	0	3	1	Tornado (sus- pected) and hail	Storm moving northeastward overturned house trailer, twisted tops of large trees over narrow path and unroofed 1 house. Hail fell in connection with storm.
KENTUCKY Warren County	22	9 a.m.			0	0	3		Tornado	Tornado struck residence about 3 miles from Bowling Green, ripping off porch and driving piece of metal through door. Heavy wooden well-en- closure lifted off ground and landed on roof of house. Roar heard and what looked like whirl- wind observed by person living in the house.
SOUTH CAROLINA Ninety-six, Greenwood County	22	1:30 p.m.			0	0	3	0	Tornado	Funnel seen moving east-northeastward and char- acteristic noise heard by several persons.
SOUTH CAROLINA Johnston, Edgefield County	22	1:30-2:30 p.m.	10	2000			1	5	Hail	Peaches damaged. Storm moved northeastward.
FLORIDA Ft. Myers, Lee County	22	1:45 p.m.	** 1700	100	0	0	3		Waterspout	Waterspout moved ashore eastward across Iona farming area, uprooting trees and tearing down powerlines.
SOUTH CAROLINA Camden, Ker- shaw County	22	2:15 p.m.					5		Wind	Storm moved east-northeastward.
SOUTH CAROLINA Creston (1 mile southwest of), Calhoun County	22	2:20 p.m.		200	0	0	3	1	Tornado	Funnel observed, moving east-northeastward.
FLORIDA West Palm Beach, Palm Beach County	22	2:30 p.m.			0	3	4		Tornado	Funnel cloud sighted. Damage path quite wide, but damage not complete as would be expected from large tornado; possibly several small short-lived tornadoes occurred. Several houses unroofed and some large trees blown down or broken off. Tornado moved southeastward.
SOUTH CAROLINA Summerton, Clarendon County	22	2:30 p.m.		200	1	1	4	1	Tornado	Funnel observed, moving east-northeastward. Dam- age characteristic.
SOUTH CAROLINA Kingstree (3 miles west of), Williamsburg County	22	2:45 p.m.		100	0	0	3	1	Tornado	Tornado moved east-northeastward.
VIRGINIA South-central and east- central portions	22	2:45-7:30 p.m.					4	3	Wind, rain, and hail	In Danville area, rain and winds accompanied by short but violent gusts to 55 m.p.h. or higher which was termed by some observers as "young tornado"; roofs lifted, plate-glass windows shattered, and debris scattered; damage estimated at \$10,000 to property. In Brookneal area, Campbell County, 1-inch hail, strong winds, and heavy rain; storm covered narrow path along Route 40 into Halifax County where a number of tobacco plantbeds destroyed and leaves from other vegetation stripped; damage estimated at \$5,000 to crops. In Peninsula area of lower Chesapeake Bay, heavy rain and gale force winds, with wind damage to buildings and trees estimated at \$3,000. Storm moved north-northwestward and north-northeastward.
SOUTH CAROLINA Florence, Florence County	22	3:00 p.m.					4		Wind	There appears to be possibility that these last 3 storms indicated path of single skipping funnel. Storm moved east-northeastward.
FLORIDA Delray Beach, Palm Beach County	22	Afternoon	Short	Narrow	0	0	3		Whirlwind	Strong local whirlwind, possibly small tornado moved southeastward, causing localized damage.
NORTH CAROLINA Cabarrus, Co- lumbus, Cumber- land, Durham, Forsyth, Frank- lin, Pender, Stanley and Stokes Counties	22	Afternoon					4	3	Wind, rain, and hail	Small low-pressure area formed over southwestern North Carolina and moved northeastward, producing many areas of damaging wind squalls. About 25 homes and 75 other buildings seriously damaged and several destroyed. Many newspaper announce- ments of "tornado", but no evidence to warrant it. Scattered heavy rain and hail, but crop damage small because few crops planted yet.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
NEBRASKA Curtis (5 miles south of), Frontier County	22	8:30 p.m.				1	3	1	Electrical	Barn struck by lightning and burned.
	22									Minor storms also reported at Eufaula, Montgomery, Troy and in Dale County, Ala.; in Gratiot and Jackson Counties, Mich.; and at Loudon, Tenn.
WYOMING Big Horn Moun- tains and 30- mile strip east of mountains	22-23	6 a.m. 22d - 6 p.m. 23d					3		Snow	Damage to power- and telephone lines. Some live-stock losses. Storm piled snow to 36 inches over mountain passes, isolating 6 persons in cars atop pass.
NEW MEXICO Entire State	22-23								Wind and dust	Damage to buildings in various communities. Power- and phone lines downed and plate-glass windows broken. Heavy blowing dust.
OKLAHOMA Panhandle counties	22-23								Wind and dust	Severe duststorm caused some damage to crops. Windmills blown down by strong winds.
SOUTH DAKOTA Western and southern counties	23	Midnight- 8 p.m.					2		Rain and snow	Rain changed to snow. Most depths about 3 inches, but 12 inches accumulated at Rapid City, Pactola Dam, and on higher peaks around Lead. Snow thawed rapidly.
MISSOURI Centralia and Mexico, Boone and Audrain Counties	23	5 a.m.					4	2	Hail, wind, and electrical	Hail up to 1 inch in diameter. Many buildings damaged.
UTAH Salt Lake City area, Salt Lake County	23	A.m.							Snow	Localized heavy snowstorm dumped from 11 to 18 inches of snow in Salt Lake City area. This was heaviest April snow of record for the city. Approximately 50 traffic accidents reported due to poor visibility and slick streets.
COLORADO Denver and vicinity	23	1:43 p.m.			0	0			Funnels aloft	Funnel clouds aloft observed moving eastward 15 miles southeast of Denver and 40 miles southeast of Denver. Both between 1,000 and 1,500 feet from ground.
MISSOURI Waynesville, Pulaski County	23	8 p.m.			0	0	2	2	Wind, hail, and funnel aloft	Funnel aloft reported over Ft. Leonard Wood.
MISSOURI Meta, Osage County	23	8:30 p.m.	1	500	0	0			Funnel aloft	Witness heard roaring sound. Funnel moved north-eastward.
MISSOURI Columbia, Boone County	23	8:30-8:45 p.m.					4	2	Hail, rain, wind and electrical	Hail 3/4 to 1 inch, heavy rain 0.50 inch in 5 minutes, and gusty winds. Unusual pressure jump, .14 in 5 minutes at 8:30 p.m. Many wires and trees downed. Hail damage to houses. Carport blown off house. Storm moved eastward.
MISSOURI Paris, Monroe County	23	8:56 p.m.			0	0			Funnel aloft	
MISSOURI Jefferson City, Cole County	23	9 p.m.				2	2	2	Wind and hail	Car blown 250 feet off highway just west of city. Many trees and wires downed. Hail up to 1-1/2 inches in diameter.
MISSOURI Linn Creek, Camden County	23	9:30 p.m.			0	0			Funnel aloft	
MISSOURI St. Louis and St. Charles Counties	23	11 p.m.- midnight					3		Wind	Wind hit 63 m.p.h., at St. Louis Airport. Many wires and trees downed. Roofs and windows damaged. House trailer overturned.
MISSOURI Hazelwood, St. Louis County	23	11:10 p.m.	1/2	150	0	0	3		Tornado	Witnesses described roaring sound. Roofs of houses damaged. Windows sucked open. Tornado moved north-northeastward.
MISSOURI Fredericktown area, Madison County	23	Late evening					4		Wind	440-foot steel tower 10 miles west of Fredricktown blown over.
	23									Minor storms also reported in northern Adams County, Ill.; at Franklin and near Greencastle, Ind.; at Centerville and in Iowa, Poweshiek, and Story Counties, Iowa; at Clinton, Fulton, New Franklin, Sedalia, Shellyville, Sturgeon, Wells-ville, and in Clark and Henry Counties, Mo.

See footnotes at end of table.

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APRIL 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
ILLINOIS South-central portion	23-24	11 p.m.- 3 a.m.					5		Wind	Numerous thundersqualls caused scattered wind damage from Carbondale and Belleville northeastward to Paris and Bloomington. Many reports of funnel clouds and tornadoes aloft, but these could not be verified. Damage heaviest in Windsor area just after midnight. Storm moved northeastward.
INDIANA Kokomo, Howard County	24	2:40 a.m.				1	3	1	Wind	Windows broken, television antennas blown down, and tree limbs snapped off.
INDIANA Salem area, Washington County	24	4 a.m.				2	4	1	Wind	Roof of garage blown 200 feet and house trailer upset in northern Salem. Southeast of Salem 2 barns lost and roof ripped from home.
KENTUCKY Davies County	24	4:20 a.m.			0	0	1		Tornado	Pilot reported funnel cloud reaching ground and moving eastward, about 10 miles south of Owensboro.
KENTUCKY Caldwell County	24	6:45 a.m.			0	0	4		Tornado	Small tornado caused damage in area of about 1-1/2 miles. Barns and farm buildings blown down, roofs stripped off houses, trees uprooted, and powerlines torn down.
OHIO Northern portion	24	Late forenoon -early after- noon				Num- erous		1	Wind	Squally winds associated with thunderstorm caused widespread damage, mainly to utility lines, trees, signs, etc. At Toledo highway department drilling scow overturned in Maumee River and a few small boats swamped. In Fremont, new masonry wall blown over. Similar incidents reported from several other places. Winds reached 50 to 75 m.p.h., at Galion and Lorain.
MICHIGAN Entire State	24	All day				3	4	1	Wind and electrical	1 home destroyed by lightning, loss \$10,000. Other scattered small damage (plate-glass, tree limbs, billboards, TV antennas, etc.,) loss \$5000.
WASHINGTON Walla Walla area, Walla Walla County	24	2:30-5 p.m.			0	0	1		Tornado, rains, and hail	20 miles northwest of Walla Walla, at 3:15 p.m., funnel cloud touched ground in wheat field, no damage. However, between 2:30 and 5 p.m., heavy rain and hail (1/4-3/4 inch in diameter) damaged crops in area extending from 20 miles west to 25 miles northeast of Walla Walla.
WEST VIRGINIA Charleston, Kanawha County	24	3:47-4:08 p.m.						1	Hail	Flowers in many gardens badly beaten and windows in many homes cracked or broken.
WEST VIRGINIA Alderson and vicinity, Monroe County	24	5:10-5:30 p.m.				2	5		Wind, hail, and rain	Teenage girl injured by being blown into barbed wire fence and man cut on face by flying glass. Hardly a home escaped some damage. Many roofs blown off, many window panes blown in, several buildings moved off their foundations and several damaged by falling trees. Many trees uprooted, including nearly 100 at Federal Institution for Women. Several sheep killed when sheep pen blown over. Hail hitting ventilating fan in restaurant kitchen "sounded like church bells ringing". Powerlines broken by falling trees. Tulip bed containing over 1,000 bulbs destroyed and many gardens damaged. Storm moved northeastward.
NEW YORK Western por- tion	24	Afternoon -evening							Wind	Winds associated with low pressure that moved north of Great Lakes and colder air behind disturbance caused some property damage and considerable crop damage. Elba muckland crops 25 to 50 percent destroyed by winds and soil erosion in windstorm.
TENNESSEE Jackson, Madison County	24	6 p.m.			0	0		1	Wind and funnel aloft	Heavy wind damage to utility lines by falling trees and limbs. Funnel apparently remained aloft. Storm moved southeastward.
LOUISIANA Arcadia, Bien- ville Parish	24	6:20 p.m.					4	2	Hail	Heavy hail, with stones reported 3/4 inch damaged roofs and windows. Storm moved eastward.
MISSISSIPPI Ripley, Tippah County	24	6:20 p.m.			0	0			Funnel aloft	Passed over town just above tree-top level; a few tree tops twisted out.
VIRGINIA Roanoke (15 miles north- east of), Botetourt County	24	6:30 p.m.					4		Wind, hail, and rain	Strong winds, rain, and hail pounded valley along Route 360, crushing barns and outbuildings, and uprooting trees. Storm moved east-northeastward.

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APRIL 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
VIRGINIA Oakville (15 miles east of Lynchburg), Appamattox County	24	6:55 p.m.					3	3	Wind, rain, and hail	Strong winds ripped off roofs of houses and barns, flattened 2 chicken brooders, uprooted trees, and heavily damaged crops within 3-mile radius. Wind accompanied by heavy rain and some hail. Damage mostly by wind. Storm moved northeastward.
LOUISIANA Lake Providence, East Carroll Parish	24	7:30 p.m.	15	30	0	0	5	1	Tornado	Moved east-northeastward into Mississippi. Passed over airport on edge of Lake Providence, destroyed hangar and 7 planes and caused some damage in town.
MISSISSIPPI Issaquena, Sharkey, and Humphries Counties	24	7:30-8:30 p.m.	50	30	0	0	4	2	Tornado and rain	Began near Lake Providence, La., and passed over Mayersville, and near Nitta Yuma to vicinity Belzoni. 4 to 6 inch rainfall damaged crops, especially as rains continued for another week in this area. Storm moved east-northeastward.
ALABAMA Madison County	24	8 p.m.					3	1	Wind	General high winds over Huntsville. Gust around 75 m.p.h., reported by airport observers.
MISSISSIPPI Rolling Fork and Anguilla, Issaquena and Sharkey Counties	24	8:30 p.m.	15	30	0	0	4	2	Tornado, wind, and rain	Moved east-northeastward between Rolling Fork and Anguilla. Associated high winds and heavy rains caused damage to buildings and crops.
MISSISSIPPI Yazoo City, Yazoo County	24	8:40 p.m.			0	0			Funnel aloft	Passed aloft over town.
KENTUCKY Lee County	24	P.m.					4		Wind and hail	Greatest damage done to school by hail. Wind completely blew off roof from store, and several other buildings received roof damage. Numerous cars and homes damaged by hail. Hailstones described "as big as hens' eggs." 80 percent of damage by hail.
TENNESSEE Middle and eastern portions	24	Evening -night				6		1	Wind, elec- trical, and hail	Extensive wind damage to roofs, windows, trees, powerlines, and small outbuildings. Most severe wind damage occurred in Jasper and vicinity, Marion County where 3 homes and 3 farm buildings destroyed, 10 homes and 1 other building sustained major damage, and 30 homes and 4 other buildings sustained minor damage. Severe wind damage in Lenoir and vicinity, Loudon County where 5 barns blown down and many house roofs damaged to extent of \$50,000. At Pikeville, Bledsoe County roofs blown off new elementary school and service station, resulting in \$15,000 damage. At Winchester, Franklin County, three-fourths of grandstand roof at fair grounds blown off and part of drive-in screen blown away. 2 persons injured at Grassy Cove, Cumberland County by concrete blocks, falling as their garage was unroofed. At Ethridge, Lawrence County 2 persons injured by broken glass and flying debris. At Lost Mountain community, Greene County woman treated for shock when store she was in was almost demolished. Lightning caused a few minor fires in Knox and Giles Counties and killed 2 cows at Wales community, Giles County. Hail widespread, but caused damage only in Robertson County where windows broken and in Knoxville, Knox County where man's head bruised and skinned by hailstones "as big as small hens' eggs".
	24									Minor storms also reported at Sheffield, Ala.; Burlington, Crawfordville, and Elnora, Ind.; in Boone and Jefferson Counties, Ky.; at Byhalia, Durant, and Minter City, Miss.; and at Cambridge Springs, Pa.
NORTH CAROLINA Catawba, Forsyth, and Rowan Counties	25	2 a.m.					4		Wind	Wind squalls with cold front passage caused scattered damage. 4 small sheet-metal hangars demolished at Newton-Conover Airport, but no aircraft damaged. Trees blown down, 1 on to automobile.
LOUISIANA Bastrop, Morehouse Parish	25	11:15 a.m.					3	2	Hail	Stones reported up to 2 inches.
ALABAMA Montgomery County	25	1:15 p.m.						1	Hail	4-engine aircraft at 23,000 feet suffered hail damage to all engines. #1 engine had to be feathered.
LOUISIANA Shreveport, Caddo Parish	25	4:48 p.m.					3	2	Hail	Stones reported up to 1-1/4 inches.

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GEORGIA Dooley County	25	P.m.					3	2	Wind, hail, and rain	Several roofs blown off. Damage to other small houses caused by falling trees. Hail and 2-1/2 inches rain in 45 minutes.
MAINE Ft. Kent, Aroostook County	25							1	Rain	Flooding by St. John River caused minor damage to 46 buildings in Ft. Kent and forced evacuation of 46 families.
	25									Minor storms also reported at Houlton, Maine; and near Crandall, Miss.
ARKANSAS El Dorado, Union County	26	2:15 a.m.						1	Electrical	55,000-barrel of oil-storage tank, partially filled with crude oil, destroyed by fire set by lightning.
TENNESSEE Nashville (near), David- son County	27	2:30 p.m.					4	1	Wind	Strong winds with gusts to 86 m.p.h., severely damaged 4 light aircraft on ground at Nashville Municipal Airport; 3 aircraft considered complete loss.
TEXAS Collin County	27	2:30-4:30 p.m.	22	*6	0	0	5	6	Tornado, hail, and wind	East of McKinney, church, school, and other buildings damaged by tornado which swept through 2 miles of open country. Hail came with sudden rush; winds to 50 m.p.h., blew from every direction. Roofs of 360 houses and 115 cars damaged. Water damage after roofs broken through. Wheat, oats, and alfalfa completely destroyed. Some livestock caught in open injured. Hailstones piled in drifts to 14 inches deep, stacked so badly on highways automobiles had difficulty getting over it. Fog several inches thick drifted over hailstones on ground. Occurred in McKinney, Friscoe, Farmerville, Wesel, and Lovejoy areas. Storm moved eastward.
TEXAS Arcadia, Elm Grove, and Kemp, Kauf- man County	27	3-4 p.m.	16	*1			°5		Hail	Damaged roofs, automobiles, windows, cotton, corn, and fruit trees. 1 farmer lost between 300 and 400 frying-size pullets, another a calf. Storm moved east-northeastward.
MISSISSIPPI Eagle Lake (20 miles north-north- west of Vicks- burg), Warren County	27	3:30 p.m.					4	2	Wind, rain, and elec- trical	Damaged several homes and store; fallen trees damaged boats on Lake.
TEXAS Navasota, Grimes County	27	3:30-11 p.m.			1		4		Wind, rain, and electrical	Winds blew down tree which damaged house roof; barn roof blown off, large henhouse blown down. Gravel streets badly damaged by heavy rain. Lightning set fire to bale of cotton. Man drowned in rain-swollen waters of creek, 2 cars completely covered by flood waters.
MISSISSIPPI Grenada, Grenada County	27	4:15 p.m.					2	2	Hail	Hailstones 1/2 to 3/4 inch in diameter caused some damage.
TEXAS Bastrop and Lee Counties	27	Afternoon -night	20	500			4		Hail	Hail to pullet-egg size, battered vegetation into ground, making replanting necessary. Small hail fell in adjoining areas. Dime Box and northward to String Prairie hardest hit. Storm moved north-eastward.
KANSAS Rawlins County	27	5:15-5:30	5	200	0	0	4		Tornado	Tornado first hit ground 4 miles north and 1-1/2 east of McDonald, traveled due east for about 5 miles and then lifted. Funnel dropped out of white cloud. A number of farm buildings, machinery, trees, and fences damaged.
MISSISSIPPI Greenwood, LeFlore County	27	6:20 p.m.					6	2	Hail	Severe hailstorm, with stones 3/4 to 1 inch in diameter damaged roofs, plate-glass windows, automobiles, and other property. Hailstones piled up in streets.
KANSAS Sheridan County	27	7-7:45 p.m.	8	*2					Hail	Hail of varying intensity and size fell over northwestern part of County. A few stones 1 inch in diameter, and were occasionally frequent enough to cause crop damage. Storm moved south-eastward.
SOUTH DAKOTA Pierre (15 miles north- west of), Hughes County	27	7:50 p.m.			0	0			Funnel aloft	Report could not be verified.
KANSAS Finney County	27	11 p.m.							Hail	Many hail claims paid for crop losses from hail damage across northern part of County.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
LOUISIANA Lake Charles, Calcasieu Parish	27	11 p.m.					4	1	Wind, elec- trical, and rain	2 buildings near air base demolished.
TENNESSEE Crossville (near), Cumberland County	27	P.m.						1	Electrical	A wood products manufacturing plant ignited by lightning and destroyed.
TEXAS Lee County	27		Short	Narrow	0	0	3		Tornado	A few trees broken down, a few roofs at Old Dime Box damaged. Accompanying heavy rain. Funnel of this tornado rose and fell; also reported over Leo and Dock Springs. Storm moved northeastward.
	27									Minor storms also reported at Kiowa, Kans.; in La Peer County, Mich.; and at Crandall and near Jackson, Miss.
KANSAS Rush, Rice, Barton, Reno, Kingman, and Harvey Counties	27-28	Night							Hail and wind	Hail began shortly before midnight in Rush County, progressed southeastward through Barton, Rice, Reno, and into Harvey and Kingman Counties. Some crop fields damaged severely. Stones ranged in size from 1/4 to 1 inch in diameter. A number of badly damaged areas were from 3 to 5 miles wide and as much as 20 miles long. High wind added to damage.
WEST VIRGINIA Williamson, Mingo County	27-28								Rain	Heavy rains caused a dozen slides, blocking high-ways. Heavy crop damage reported from crops in bottomlands being washed away.
LOUISIANA Kenner and New Orleans, Jefferson and Orleans Parishes	28	1 a.m.					4	1	Wind, elec- trical, and rain	2 homes in Kenner unroofed. Trees downed and 1 home damaged in New Orleans.
KANSAS Sedgwick County	28	2:30 a.m.					2		Hail and electrical	Lightning struck a house in Wichita, damaging roof. Hail destroyed gardens and crops and damaged cars and roofs east of Wichita. Storm moved southeastward.
OKLAHOMA Altus, Jackson County	28	10:42 a.m.			0	0			Funnels aloft	Altus Air Force Base reported 2 funnel clouds, east and southwest of Altus.
TEXAS Sherman, Grayson County	28	A.m.			0	0			Funnel aloft	Occurred during rain- and windstorm.
OKLAHOMA Marietta, Love County	28	4 p.m.	3	880			4	3	Hail	Hailstorm with stones mostly 2 inches but some up to 4 inches in diameter caused considerable property damage to roofs, windows, automobiles, awnings, neon signs, and some crop damage near city. Storm lasted about 40 minutes; moved southeastward.
TEXAS Bridgeport, Wise County	28	4:50 p.m.	1/2	300	0	0	4		Tornado	Mostly in industrial area of town; followed rail- way; moved southeastward.
TEXAS Denton (12 miles west of) Denton County	28	4:50 p.m.			0	0			Tornado (suspected)	Unconfirmed tornado.
TEXAS Bridgeport, Wise County	28	5 p.m.			0	0			Funnel aloft	Moved southeastward.
TEXAS Gainesville, Cooke County	28	5:45 p.m.	5	*3			3		Hail and rain	Stones to 6 inches in circumference smashed win- dows and hothouse glass, demolished greenhouse, damaged a few signs and cars. Hothouse plants, garden flowers, and shrubs damaged or destroyed. 1 inch of rain in 30 minutes. Storm moved southwestward.
OHIO West-central portion	28	Late af- ternoon						1	Hail	Hail, estimated size of "hens' eggs" broke hun- dreds of windows, damaged roofs and 5 small air- planes at Xenia. Damage estimated in this area at \$80,000 to \$100,000. Similar spotty damage also reported from Germantown, Miamisburg, and Jamestown area, but no estimate of damage ob- tainable. These places fall roughly in line with each other.
TEXAS Krum (3 miles north-northwest of), Denton County	28	6 p.m.			0	0			Funnel aloft	200 feet off ground.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Between Avenger and Hughes Springs, Cass County	28	6:10 p.m.			0	0			Funnel aloft	
TEXAS Gholson, McLennan County	28	6:30 p.m.					4		Hail	58 m.p.h., wind, 1/2 inch rain in 15 minutes. At least one-half of watermelon vines in this famous melon-growing community lost. Storm moved south-eastward.
TEXAS Comanche County	28	6:30 p.m.	5	880	0	0	°5		Tornado and hail	At Downing and Comanche, tornado demolished or badly damaged 14 houses and poultry farm out-buildings, and uprooted hundreds of pecan trees. Several small funnel-shaped twisters. Large hail falling in Comanche, Sidney, and other communities in county damaged roofs, fruit crop, windows, neon lights, and power poles. Storm moved northeastward.
OHIO Columbus, Franklin County	28	6:45-7:20 p.m.			0	0	4	1	Tornado (suspected), wind, and rain	During particularly noisy thunderstorm, complete roof on business building taken off. It crashed down on 2 other buildings nearby, causing extensive damage. In other parts of city, winds not strong, and no other damage reported. However, rainfall heavy, averaging over the city about 1 inch. At one point, however, unofficial, but reliable measurement of 3 inches reported.
ARKANSAS Ft. Smith, Sebastian County	28	7 p.m.					5	1	Electrical	3-story downtown building, housing radio station studio and Army Reserve Units, extensively damaged by fire set by lightning.
TEXAS Fort Worth (10 miles south-southwest of), Tarrant County	28	7:20 p.m.			0	0			Funnel aloft	
TEXAS Wolfe City and Celest, Hunt County	28	8:21 p.m.			0	0			Funnel aloft	
TEXAS Palestine (5 miles south-east of), Anderson County	28	9:17 p.m.			0	0			Funnel aloft	Moved eastward.
PENNSYLVANIA Butler, Butler County	28	11:30 p.m.					4	1	Electrical	Lightning fired merry-go-round and building in which it was housed in amusement park, causing \$15,000 damage. Appliance store and warehouse also struck, resulting in \$2,500 fire.
NEW HAMPSHIRE Southern portion	28						3	1	Snow	Heavy, wet snow felled tree branches in several communities, causing damage to utility lines.
TEXAS Palo Pinto area, Palo Pinto County	28						4		Hail	Heavy hail damage at 7,000 foot altitude to twin Bonanza airplane; forced to land at Breckenridge Airport. No report of ground-level damage. Reported by Ground Observer Corps in Caddo area.
TEXAS Goldthwaite, Mills County	28				0	0			Tornado (suspected)	Unconfirmed tornado.
	28									Minor storms also reported in Pulaski County, Ga.; and at Spiro, Okla.
ALABAMA Jefferson County	29	6 a.m.	1/2	100	0	0	4	1	Tornado	Tornado 6 miles south-southwest of McCalla moved northeastward.
ALABAMA Jefferson County	29	6 a.m.	1/4	300	0	0	4	1	Tornado	"Roaring" tornado at Gardendale dipped once. In addition to garages and carports destroyed, jeep truck lifted and dropped 8 feet from its original position. Tornado moved northeastward.
ALABAMA Chilton County	29	6:30 a.m.	Short	Narrow	0	0	3	1	Tornado (suspected)	2 miles east of Clanton.
ALABAMA Chilton County	29	6:40 a.m.	12	100	0	0	4		Tornado	Skipping path northeastward from Jemison to Friendship, Walnut Creek, and Sunshine communities.
ALABAMA Etowah County	29	6:40 a.m.	Short	Narrow	0	0	4	1	Tornado (suspected)	In Camp Sibert area of Gadsden. Damage described as highly localized. Storm moved northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Dallas, Dallas County	29	7:50- 11:16 a.m.					5		Wind and rain	Tore roofs from buildings, broke powerlines, blew down signs, flooded 33 streets. Gusts to 68 m.p.h. Automobile warehouse roof partially torn off, 30 cars damaged. Many windows broken, TV antennas damaged or destroyed, trees downed. Considerable water damage to interiors. Storm moved east-southeastward.
TEXAS Sulphur Springs (12 miles west of), Hopkins County	29	8:40 a.m.			0	0			Funnel aloft	Moved southward and eastward.
TEXAS Terrell, Kaufman County	29	10-10:15 a.m.					5		Wind	High winds during blinding rainstorm demolished 4 planes, damaged another. Many broken windows, roof and tree damage severe, 1 home and several outbuildings blown down. Winds in excess of 55 m.p.h. Storm moved east-southeastward.
TEXAS Wills Point (west of), Van Zandt County	29	10:20 a.m.			0	0			Funnel aloft	Moved southeastward.
TEXAS Cleburne, Johnson County	29	12:30 p.m.	5	*5			4		Hail and rain	Jagged, golfball-size hail ruined or damaged roofs, school, commercial and residential buildings, also windows and neon signs. Accompanying heavy rain. Storm moved southeastward.
KENTUCKY Jefferson County	29	4 p.m.					4		Wind	Movie screen at drive-in theater blown down and several trees blown over by high winds during thunderstorm.
TEXAS Sand Hill (6 miles west of), Crosby County	29	4 p.m.			0	0			Tornado (sus- pected)	Unconfirmed tornado.
TEXAS Wills Point, Van Zandt County	29	7:20-7:35 p.m.	8	*4			3		Hail and rain	Roofs of houses, barns and outbuildings damaged. Trees and TV antennas ruined or badly damaged. 0.80 inch of rain in 10 minutes. Storm moved east-southeastward.
TEXAS Laneville, Bullard, New Summerfield, Sulphur Springs, New Salem, and Glenfawn, in Cherokee, Rusk, and Smith Counties	29	7:45-8 p.m.	50	*45	0	4	5	5	Tornado and hail	In Anadarko community, school cafeteria roof torn off, flung into rear of main building; science building moved some 8 feet. 2 homes damaged and ground floor of Masonic Lodge blown away leaving second floor partially on building's foundation. Large broiler house and 2,000 chickens destroyed. At New Summerfield, heavy fruit and tomato crop damage by hail. Crops and gardens virtually wiped out by hail at other named communities. Poultry house in Griffin community demolished, with 3,000 laying hens. 1 home demolished, 5 damaged; 1 car, TV antennas, fences, powerpoles and outbuildings destroyed or damaged. No serious injuries. Unmelted hailstones still along road at 10 a.m. next day. Storm moved eastward and northeastward.
LOUISIANA Shreveport (15 miles northwest of), Caddo Parish	29	8:45 p.m.					4	2	Hail and wind	Good-sized hail. TV transmitter knocked out.
	29									Minor storms also reported at Jackson, Antioch, and in Crossroads Community, Miss.; Athens and in Meigs County, Tenn.; Thornton and in Sand Hill Community, Tex.
	29-30									Minor storm reported at Perry, Tex.
TEXAS Ector, Fannin County	30	7 a.m.					°3		Hail, wind, and rain	Hail 1-1/2 inches in diameter damaged roofs, young crops, trees, and TV antennas. Car damaged by caved-in roof. Wind gusts to 50 m.p.h. Accompanying heavy rain. Storm moved southward.
TEXAS Hunt County (South Sulphur Community)	30	Morning					4		Wind and rain	Roofs and plate-glass windows damaged or broken, TV antennas toppled. Damage reported on nearly every farm, barns demolished, homes damaged and outbuildings scattered. Several small buildings wrecked in nearby areas. Small grain and corn washed out by recent weather occurrences. Storm moved southward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

APRIL 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Cranfills Gap to Lanham to Leon River, Bosque and Hamilton Counties	30	Morning	8	*3	0	0	4	4	Hail and rain	At Cranfills Gap about 50 percent of roofs badly damaged and 25 to 30 percent of crops ruined. Greatest damage at Lanham where crop loss 100 percent. Solid hailstones 3 inches in diameter, some 5 inches, covered Cranfills Gap; church and school windows broken and some car damage. 2 inches of rain in 20 minutes fell with hail. Hail reported between 2 and 3 feet deep between Cranfills Gap and Lanham, still seen along highway in afternoon. Storm moved northeastward.
TEXAS Henderson and New London Rusk County	30	6:45 p.m.	12	*5		1	3		Wind and funnel aloft	TV antennas collapsed, trees damaged, roof ripped from barn, powerlines downed. Strong winds did not come to ground. Funnel followed by patrol car for 60 miles to Tatum. Storm moved northeastward.
	30									Minor storm also reported in northern Lower Michigan.
LATE REPORTS										
ALASKA McGrath	March 2-3	2:45 a.m. 2d-4:55 a.m. 3d	300	*250			3	1	Wind	Windstorm result of rather intense low, moving eastward across southern portion of Seward Peninsula. Although it filled rather rapidly, it moved approximately 100 miles east of Norton Sound before losing much of its intensity. Since low failed to maintain its intense circulation, no change of consequence in direction of gradient wind occurred, and strong winds appear to have maintained general southwesterly direction throughout period, although local terrain doubtless produced considerable local variations in both direction and speed. Wind speeds associated with storm were, doubtless, stronger to northwest of McGrath across Kuskokwim Range where terrain less rugged to affect gradient flow. Damages in McGrath area limited to small area at Hub Air Service and housing area. Winds rapidly increased their speeds around 3 a.m., March 2, reaching 51 m.p.h., by around 3:30 a.m. 2 light airplanes overturned. Glass and frames of combination doors in housing area damaged with a number of sash broken.

† This figure from Red Cross Report; other accounts indicate about 50 persons injured.

* Miles instead of yards.

** Yards instead of miles.

° Includes crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

APRIL 1958

Severe floods developed in the East Gulf of Mexico drainage and in the Red Basin near the close of the month. A near record crest occurred on the Ouachita River in Arkansas. Major floods were developing on the Little River in Arkansas and on the Sulphur and Cypress Rivers in Texas. Near record to record stages were reached on the Russian, Pajaro, and on tributaries of the northern San Joaquin in California.

ST. LAWRENCE DRAINAGE

Lake Ontario Drainage.--No damage resulted from the flooding in the Genesee River Basin from the 6th to the 9th and on the 22d. On Canaseraga Creek at Groveland, N. Y., some water backed up through a drainage ditch system covering State route 258 for about 4 days.

ATLANTIC SLOPE DRAINAGE

There was some lowland flooding from the rain beginning on the 22d along the Saco, Androscogin, and Kennebec River Valleys in Maine beginning on the 23d. Although much of the winter's snow deposits disappeared from exposed lowlands during the early part of the month, the snow cover at high elevations and in deeply wooded areas lasted well into April and in some areas contained more water than had been experienced in recent years. These snow deposits were an ever increasing flood threat in the event of warm, rainy weather. There was no damage from the flooding beyond wet cellars, some closed-off roads, and temporary stoppage of mills as a precautionary measure. All rivers were receding by the 26th. The most important flooding of the month occurred on the St. John River on the 25th in the vicinity of Fort Kent at the Canadian Border, where flood waters forced the evacuation of 46 families. Damage to buildings was minor.

Minor flooding occurred on the Merrimack River at Concord and Manchester, N. H., on the 24th. The spring runoff season began with near record amounts of snow on the ground over all but the extreme southeast portion of the basin. A favorable sequence of weather events through the period March 15 to April 1 produced a gradual melting of the snow, and no flooding of any consequence occurred. Such flooding as did occur was limited to the meadow-lands along the immediate banks of the streams.

Minor flooding occurred on the Charles and Neponset Rivers in Massachusetts during April from excessive rains. Boston's total of 7.82 inches of precipitation was more than twice the normal rainfall of 3.46 inches. The Charles River was in flood 9 days from the 9th through the 17th and the Neponset, 13 days.

The Connecticut River rose above flood stage at most points along its entire course about the 17th. It dropped below flood stage over the upper portion around the 26th, with a second minor rise continuing flood stages over the southern portion until May 2. The major factor contributing to this rise was snowmelt. There was 3 to 4 ft. of snow on the higher terrain of the upper valley on the 14th. The runoff from this snowmelt reached a maximum about the 19th. Light to moderate rain on the 22d and 23d accelerated the melting of the snow cover. Moderate rain on the 28th and 29th caused another minor rise over the lower Connecticut, with flooding at Hartford, Conn., continuing until May 2.

The flooding on the Schroon River at Riverbank,

N. Y., from the 19th to the 28th was due to snowmelt and warm rains. Flooding was confined to lowlands. The Wallkill River overflowed at Phillipsburg, N. Y., from the 7th to the 9th. The flooding was due to rainfall ranging up to 1.5 inches in 48 hours. Minor flooding occurred on the Hudson River at Hadley, N. Y., on the 22d and 23d and was due to rainfall ranging from 1 to 2 inches. No damages were reported.

Heavy showers during the late morning and early afternoon of the 6th caused minor flooding in streams in New Jersey. Assunpink Creek began overflowing on the 6th and continued to the 7th. The other streams were in flood on the 7th. No damages were reported.

Rain (1.5 inches) combined with snowmelt during the 24-hour period ending on the 6th caused the Lackawaxen River to rise to a crest of 11.9 ft. at Hawley, Pa., on the 6th, 2.9 ft. above flood stage. No damages were reported.

Minor flooding occurred on Perkiomen Creek at Graterford, Pa., during the evening of the 6th from the heavy rains (about 2 inches) which fell over the Delaware Basin on Easter Sunday (April 6). Small streams in the Philadelphia area and the upper Delaware above Port Jervis, N. Y., reached bankfull stage, but no overflow was reported.

The moderate flooding on the Chemung River in New York from the 6th to the 8th was due to heavy snowmelt and light to moderate rain on the 7th and 8th. An unusually heavy snow cover with high water content covered the basin on April 1. Maximum temperatures were generally in the 50's the first 5 days of the month and in the 60's on the 6th. The same condition existed over the Susquehanna Basin in the beginning of the month - that is, there was a heavy snow cover with water content ranging from 1 to 22 inches. Maximum temperatures over the basin ran in the 50's and 60's. Light to moderate precipitation occurred over the basin on the 7th and 8th and contributed to the runoff. The Susquehanna crested about 5 ft. above flood stage at Conklin, N. Y., and in the reach from Vestal, N. Y., to Wilkes-Barre, Pa.; at other points the crests ran about 2 ft. above flood stage. Flood damages along the Susquehanna were mostly minor.

The light flooding on the James River in Virginia between the 1st and 3d was due to heavy rain on March 30-31. No damages were reported.

The rivers in eastern North Carolina remained at relatively high levels most of the month due to frequent rains. The rainfall for the month averaged about 5 inches over all the river basins.

Frequent heavy rains throughout the month kept stream levels high. Several significant rises occurred on the Yadkin River at Yadkin College, N. C., during the month. Shallow flooding with no damage occurred during the last rise. Four major rises occurred on the Rocky River at Norwood, N. C. - two of them crested 7 and 8.6 ft. above flood stage. Minor damage resulted to growing crops along the river banks. The Pee Dee River rose above flood stage twice during the month, with the crests at Cheraw, S. C., being 4 and 7.4 ft. above flood stage. At Peedee, S. C., the river was out of its banks for 23 days. The Black River flooded at Kingstree, S. C., for the first time since December 1948, and reached its highest stage since September 1945. The Waccamaw River reached its highest stage since February 1948. Moderate flooding occurred along the main stem of

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

APRIL 1958

the Edisto. This was the first flood since September 1953, at Orangeburg, S. C., and the highest since August 1949. In the Givhans Ferry, S. C., area most camp sites on the river were inaccessible or under water.

Flooding along the Broad River in South Carolina was the heaviest since November 1957. Along the Saluda River, flooding was minimized by operations at Lake Greenwood and Lake Murray. For the first time in 3 or 4 years generation at Lake Murray was maintained near capacity for most of the period. The spillage at Lake Greenwood on the 16th caused some concern to interests downstream. However, no significant damage was observed. Flooding along the Catawba-Wataree River caused some damage to the Bowater plant installation at Catawba, S. C. The lower Santee River was the highest since 1954, causing considerable lowland flooding. Widespread lowland flooding occurred along the Congaree around the middle of the month and again towards the end of the month. A few cattle were lost. There was some damage to pastures and small grain.

Light to moderate flooding occurred on the Savannah and Ogeechee Rivers in Georgia during April due to frequent light to moderate rains. A few cattle were lost, otherwise damage was negligible.

EAST GULF OF MEXICO DRAINAGE

There were two significant rises on the Apalachicola River in Florida during April. The more important one occurred from the heavy rains on the 10th and 15th when some stations reported 24- to 36-hour falls of 3 to 5 inches. Blountstown, Fla., remained in flood from the 10th to the 30th with a crest of 20.4 ft., 5.4 ft. above flood stage on the 20th. No damages resulted from the flooding.

The Tombigbee River was at a high level in the beginning of the month and was within its banks except at Whitfield, Ala. Moderate rains on the 10th and again on the 15th and 16th caused minor rises but no important flooding. Heavy rains beginning on the 26th and continuing intermittently into May, caused moderate flooding on the Warrior and Tombigbee Rivers. A more complete description of this flood will be given in next month's report.

Minor, mostly brief, flooding occurred at some gaging stations along the Pearl River during intermittent periods in April. Only minor damages resulted from these overflows. A severe flood was developing on the Pearl at the close of the month from the heavy rains which began on the 24th.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The mean stage of the Mississippi River at Fort Ripley, Minn., for April was 4.2 ft. This is the lowest mean stage recorded at this point since 1933 when a mean stage of 4.0 ft. was recorded. At Minneapolis, Minn., the mean stage of 6.2 ft. equalled the lowest April mean stage recorded in 1942 and 1938. At St. Paul, Minn., the mean stage of 3.8 ft. was the lowest since 1942. At La Crosse, Wis., the mean of 5.9 ft. was the lowest April mean stage since the locks and dams were put in operation in 1937.

The Big Muddy River was in flood at Murphysboro, Ill., at the beginning of the month but was falling and was within its banks on the 4th. Farmland and low roads in the area were flooded, but there was no reported damage except to winter grains. The Big Muddy was in flood again towards the end of the month from light to locally heavy rain

which began on the 20th and continued at 1- to 2-day intervals until the end of the month. The Big Muddy was 3 ft. above flood stage at Murphysboro, Ill., at the close of the month.

Missouri Basin.--The west fork of the Milk River overflowed its banks near Chinook, Mont., on the 7th and 8th. No serious damage resulted from this overflow.

Minor flooding occurred on the south fork of the Solomon River at Osborne, Kans., on the 1st, 2d, and 3d.

Moderate to locally heavy rains from the 3d to the 6th caused light flooding on the South Grand at Brownington, Mo., and on the Osage at Shell City, Mo., between the 4th and 9th. Some damage resulted to winter grains.

Ohio Basin.--The flooding on the Allegheny River at Olean, N. Y., and the Cheat River at Parsons, W. Va., beginning on the 6th was due to snowmelt and rainfall ranging from 1 to 1.5 inches.

Light flooding occurred on the Scioto River at Piketon, Ohio, from April 29 to May 1. The crest was not high enough to interfere with the agriculture and commerce of the area.

Some of the smaller creeks in the vicinity of Huntington, W. Va., overflowed their banks for a few hours on the 28th, flooding some farmland. No damage resulted as the land was not yet in cultivation due to the late crop season.

Heavy rain on the 27th caused the Chamberlain Branch (tributary of Kentucky River) on the Irvine-Ravenna, Ky., boundary to inundate about 100 ft. of the highway with 3 ft. of water. Three store buildings were flooded.

Minor flooding occurred along the middle fork of the Sabine River at Harrisburg, Ill., and on the Green River at Woodbury, Ky., during the last few days of the month. The high water was due to rains on the 27th to the 29th that averaged 1.75 inches. No damages resulted.

Rainfall, averaging nearly 6 inches during the period from the 21st to the 30th in the upper Cumberland Basin, caused the Cumberland River to rise slightly above flood stage at Williamsburg, Ky., on the 30th. Little or no damage resulted.

Heavy rain, ranging up to 4 inches over the middle half of the Tennessee River Basin on the 28th, caused high inflows into this portion of the basin. In order to regulate the flow in the main river, high discharges were scheduled at all of the main river dams of the Tennessee Valley Authority control system from Guntersville Dam through Kentucky Dam. These high discharges resulted in minor flooding below Guntersville, Wilson, Pickwick, and Kentucky Dams. No damages resulted.

White Basin.--The flooding on the Black and White Rivers in Arkansas during April was due to heavy rains which fell during the last 10 days of March. The damage from the flooding was confined principally to the loss of the use of land adjacent to the streams for agricultural purposes.

Arkansas Basin.--Moderate to locally heavy rains up to nearly 2 inches on the 3d resulted in near to slightly over bankfull stages on the Verdigris and lower Neosho in Kansas. At Independence, the Verdigris crested nearly 2 ft. over bankfull on the 4th, while elsewhere on the Verdigris stages were 3 to 4 ft. below bankfull. On the lower Neosho stages were one-half to three-fourths bankfull, except at Oswego where it crested 1.3 ft. above bankfull on the 5th.

Red Basin.--The heavy rains and thunderstorms,

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

APRIL 1958

which began over the southern half of Arkansas late in the evening of the 24th and early morning of the 25th, caused major flooding on the Ouachita with a crest at Camden, Ark., near the alltime high stage of 44.8 ft. recorded on April 3, 1945. During the 6-day period from the 25th through the 30th, storm totals averaged near 6.9 inches over the middle and lower Ouachita River Basin. The greatest total reported during this period was 18.11 inches at the El Dorado Airport. Heavy rains continued into May. Flash floods occurred over large areas of the southern portion of Arkansas.

The Little River at Whitecliffs, Ark., the Sulphur River at Naples, Tex., and the Cypress River at Jefferson, Tex., began to overflow the latter part of April due to heavy rains from the 25th to the 30th. These floods continued into May and were of major proportions. The precipitation during that period averaged 7.2 in. over the Sulphur Basin, 11.1 in. over the Cypress Basin, and 9.8 in. over the Little River Basin. The greatest amount reported during that period was 16.89 in. at Stamps, Ark.

Lower Mississippi Basin.--Flooding continued on the St. Francis at Fisk, Mo., from March 24 to April 11 and at St. Francis, Ark., from March 23 to April 17. This flood was due to heavy rains (4 in.) on March 23 and 24. Heavy rains occurred from April 26 through the 29th which caused another rise with flooding at Fisk, Mo., beginning on April 29. Damage in the March to April flood was negligible, as the unprotected lowlands in the Fisk-St. Francis area were in flood in midwinter, and no pastures or winter crops were growing.

Heavy rains during the last week set the stage for record or near record stages on the Big Sunflower and Big Black Rivers in Mississippi early in May. The Yazoo also reached record stages at some points below the dams since their completion. Four to 11 inches of rain fell during the last 6 days of April and continued in some areas with only short breaks until May 6. The Tallahatchie exceeded flood stage at Swan Lake, Miss., on the 29th and Yazoo at Yazoo City, Miss., on the 30th. The Big Black River at Bovina, Miss., and some points upstream exceeded flood stages on the 29th and continued its rise to a record stage of 39.9 ft., 11.9 ft. above flood stage at Bovina, Miss., on the 6th.

WEST GULF OF MEXICO DRAINAGE

Heavy rain during the period from April 25 to May 2 produced flooding in the Sabine and Trinity Rivers in Texas, which continued into May. The total average rainfall in the Sabine Basin equalled 6.42 inches from the 25th to the 30th and in the Trinity Basin from 5 to 10 inches. Flash flooding was general on the smaller streams and particularly damaging in urban areas. Flood control reservoirs prevented major flooding of the Trinity at Dallas, Tex., and above. Damage was due mostly to flash flooding of smaller streams, sewers, streets, etc. The Trinity caused only minor damage to the southern part of Dallas, which is unprotected by the levees. There were two levee breaks on the east fork which caused the inundation of considerable farmland. There were at least two deaths which were attributed to the flash flooding over highways.

Bankfull stages were exceeded on the Rio Grande at Espanola and Albuquerque, N. Mex., between the 20th and 29th. There were several instances of

undercutting during the period, and considerable work was necessary to prevent breaks in the levees. No flooding was reported.

PACIFIC SLOPE DRAINAGE

California Coast Drainage.--Precipitation during the first week of April over most of California was extremely heavy. South of Point Buchon the precipitation varied from slightly below normal in the lower desert valleys to over 300 percent of normal. Some areas received record amounts of rain for April. In the coastal valleys near Los Angeles, about 3 inches of precipitation was reported during the first 8 days of the month, in Santa Barbara County coastal valleys 4 to 5 inches, and in the higher mountains 7 to 10 inches. In the Central Valley drainage, the precipitation during the first week of April exceeded that normally received in the entire spring months of April, May, and June. Most mountain stations reported 8 to 12 inches of precipitation or 200 to 300 percent of the April normal. Valley and foothill stations reported amounts proportionately as high. Outstanding was Oakdale Woodward Dam that reported 8.6 inches, 789 percent of normal. In the area from Point Delgada to Point Buchon, precipitation during the first week ranged up to 400 percent of normal. San Francisco reported 5.5 inches during that period.

These heavy rains resulted from a series of cold, intense storm fronts, moving across the state from about the middle of March through the first week in April. Only a few mountain thunderstorms occurred during the last 3 weeks of April. Each of the storm systems moved rapidly from the Gulf of Alaska southeastward across California. Usually, moderate to heavy rain with heavy snow and very strong wind above 2,000 to 3,000 feet in elevation preceded each storm front by several hours. Following the fronts were heavy showers or thunderstorms that continued until the next front was just offshore. The snowpack in the Sierra built rapidly to a record April depth, with the Soda Springs Snow Laboratory reporting a maximum depth of 223 inches on April 3 and Norden reporting 270 inches on the 4th. Trans-Sierra highways were closed on numerous occasions, and the railroads also suffered a closure for about 2 days. The snow level dropped on occasion as low as 1,200 feet. The last storm front of the series occurred on the 5th and 6th, but the most intense, especially in the northern San Joaquin Basin was the one on the 2d. This latter storm was also a rapid mover, but it developed a wave southeast of Sacramento with the snow level rising suddenly from 2,000 to 5,000 feet. This was the storm that caused widespread flooding in the northern San Joaquin.

There was considerable street flooding in low-lying metropolitan sections in southern California. The lower sections of the Mojave River, normally a dry riverbed, reported surface water for the first time since 1943. Considerable damage was reported from the flooding along Canyon Creek, Santa Maria, and Mojave Rivers.

Crest stages on tributaries of the northern San Joaquin reached near record heights. McConnel Station on the Cosumnes River with a crest of 46.1 feet was only 0.3 foot below the record height established in December 1955. The Mokelumne River at Bensons Ferry was only 0.2 foot below the record height. Flooding occurred over large sections of

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

APRIL 1958

agricultural lands adjacent to all tributary streams. Several levee breaks occurred on the main stem of the San Joaquin on the 5th, with flow into adjacent leveed agricultural tracts.

The Thule River crested slightly under flood stage but still caused additional flooding of Highway 99 and added to the flooded area in the Tulare Lake Basin, where irrigation dikes had to be cut to prevent more extensive flooding. The Chowchilla and Fresno Rivers went above flood stage early in the morning of the 3d, flooding some agricultural land. Some flooding occurred in Merced County from flows out of minor creeks, and minor flood damage occurred in Los Banos when Los Gatos Creek overflowed. Several blocks in Mendota were flooded slightly from breaks in levees of the San Joaquin River and waterflow from Panoche Creek.

At Guerneville, on the Russian River, the crest of 33.2 feet on the 3d exceeded the previous spring high of 31.8 feet on April 5, 1941. At Chittenden Pass, on the Pajaro River, the crest of 33.1 feet on the 3d exceeded the 32.5 record high of December 24, 1955. The 22.9-foot crest on the 4th at Spreckels Highway Bridge on the Salinas River is a new high for the month of April at that gage. These record to near record crests were due to rainfall during the first week of April that averaged 6.3 inches over the Russian and Napa Basins, 5.3 inches over the Salinas, and 5.2 inches over the Pajaro.

Flooding began on the 1st at the community of Alviso in the lowlands at the south end of San Francisco Bay, as high tides met overflow from the Guadalupe River. Most of the town's residents moved out for several days, as the flooding was repeated with each high tide. There was minor flooding in Marin County and threats of flooding on the Carmel River, Walnut Creek in Contra Costa County, and Alameda Creek in Alameda County. On the 2d widespread flooding or threats of flooding occurred on virtually every creek in the Bay counties area. Several thousand persons evacuated from their homes. Among the areas affected were

Walnut Creek and Concord (Walnut Creek), San Pablo and Richmond (Wildcat and San Pablo Creeks), Alvarado (Alameda Creek), Hayward (San Lorenzo Creek), Granton Park and Kentfield (Corte Madera Creek), Redwood City (Redwood Creek), and South San Francisco (Colma Creek). On the 3d minor overflow began along the Salinas River and continued until the 5th. On the Nacimiento, the downstream channel flooded after Nacimiento Dam reached capacity and began spilling. The Carmel River overflowed its levee system south of Carmel and flooded a new subdivision of homes with 100 persons having to evacuate. Coyote Creek overflowed through sections of San Jose and added to the flood conditions already existing in the south Bay area. Storm waves from the Pacific hit the coastline at Santa Cruz and on the San Mateo County coast in the Afternoon and evening. The Pajaro crested at a new record height at Chittenden Pass, flooding hundreds of acres of orchard land. Three deaths by drowning were reported.

Columbia Basin.--The flooding in the Columbia Basin between the 20th and 25th was due to moderate to heavy rain from the 19th to the 22d. Previous to this rain, from the 13th to the 17th, there was a slight warming with nighttime temperatures above freezing. This temperature-precipitation combination added considerable runoff from snow-melt which resulted in substantial rises in rivers and tributary streams, both east and west of the Cascades. The only flooding was in the Santian in the vicinity of Jefferson, Oreg., the McKenzie River at Leaburg, Oreg., the Pudding River at Aurora, Oreg., and the Umatilla River and McKay Creek in the Pendleton, Oreg., area. There was some damage to pier construction work of a new Sandy River Bridge at Troutdale, Oreg., on Highway 30, because of the lodging of driftwood against the structure. There was also some damage to a dam construction project in the headwaters of the Clackamas, and some trouble developed in a small moorage near the mouth. There was some damage to sawmills below Pendleton, Oreg., in the Umatilla.

FLOOD STAGE DATA

(All dates in April unless otherwise specified)

APRIL 1958

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Ontario					
Canaseraga Creek: Groveland, N.Y.	11	6	7	12.5	6
Oatka Creek: Garbutt, N. Y.	5	7	9	5.7	8
Genesee: Wellsville, N. Y.	10	7	7	10.3	7
Scio, N. Y.	8	7	7	9.0	7
		22	22	8.1	22
ATLANTIC SLOPE DRAINAGE					
Merrimack: Concord, N. H.	12	24	24	12.3	24
Manchester, N. H.	7	24	24	7.0	24
Charles:					
Charles River Village, Mass.	4	9	17	4.1 4.4	10 13
Neponset: Norwood, Mass.	9	2 7	4 16	9.2 10.0 9.8 9.2	2 8 13 30
Connecticut:					
White River Junction, Vt.	18	17	26	21.5	24
Montague City, Mass.	28	18	26	32.2	24
Hartford, Conn.	16	18	May 2	22.1	25
Schroon: Riverbank, N. Y.	7	19	28	8.8	23
Wallkill: Phillipsburg, N. Y.	12	7	9	12.2	7
Hudson: Hadley, N. Y.	14	22	23	14.5	22
Ramapo:					
Pompton Lakes, N. J.	1.7	7	7	1.9	7
Passaic: Little Falls, N. J.	126	7	7	126.9	7
Assunpink Creek: Trenton, N. J.	7	6	7	7.8	8
Millstone: Bleckwells Mills, N.J.	7	7	7	8.4	7
Raritan: Bound Brook, N. J.	8	7	7	9.3	7
Lackawaxen: Hawley, Pa.	9	6	7	11.9	6
Perkiomen Creek:					
Graterford, Pa.	8	6	6	9.3	#6
Chemung: Elmira, N. Y.	16	7	8	17.7	7
Chemung, N. Y.	12	6	8	17.0	7
Susquehanna: Conklin, N. Y.	11	4 15 22	10 18 23	15.8 11.9 11.5	7 17 23
Binghamton, N. Y.	14	7	8	15.8	7
Vestal, N. Y.	18	6	9	22.8	7
Towanda, Pa.	16	6	9	20.9	8
Wilkes Barre, Pa.	22	7	9	26.8	8
Danville, Pa.	20	8	9	21.8	8
James: Breomo Bluff, Va.	19	1	1	19.6	1
Columbia, Va.	18	1	2	20.4	1
Richmond, Va.	12	1	3	13.4	2
Dan: Danville, Va.	11	28	30	#11.4	29
Roanoke: Randolph, Va.	21	1	3	22.9	2
Weldon, N. C.	31	13	19	#32.3	17
Scotland Neck, N. C.	28	14	20	#28.3	16
Williamston, N. C.	10	1	30	#11.3	18-24
Tar: Greenville, N. C.	13	Mar. 31	3	#13.3	1
Neuse: Neuse, N. C.	14	8	11	#16.0	9
		13	15	#15.5	14
		30	30	#14.9	30
Smithfield, N. C.	13	9 30	16 1/	#15.9	11
Goldsboro, N. C.	14	Mar. 29 9	6 21	#17.5 #16.6	2 14, 16
Kinston, N. C.	14	1 13	9 22	#15.6 #14.95	4 18
Cape Fear: Elizabethtown, N. C.	20	30	1/	28.9	2

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE (Cont'd.)					
Yadkin: Yadkin College, N. C.	20	29	29	20.9	29
Rocky: Norwood, N. C.	16	6 11 28	7 11 30	24.6 19.1 23.3	8 11 28
Waccamaw: Conway, S. C.	7	16	29	8.3	19
Black: Kingstree, S. C.	12	17	23	13.6	19
Pee Dee: Cheraw, S. C.	30	7 29	8 May 2	34.0 37.4	7 29
Peedee, S. C.	19	3 29	23 1/	22.2	16
Saluda: Pelzer, S. C.	6	1 6 13 29	2 7 14 1/	7.5 6.5 6.5 9.0	1 7 13 29
Chappells, S. C.	13	16	17	18.5	16
Broad: Gaffney, S. C.	10	7 28	7 29	10.5 12.8	7 28
Blair, S. C.	14	1 7 16 29	1 8 18 1/	14.4 19.6 16.4 22.8	1 8 17 30
Congaree: Columbia, S. C.	19	30	30	19.4	30
Catawba: Catawba, N. C.	10	28	28	13.9	28
North Fork Edisto: Orangeburg, S. C.	8	16 29	23 1/	8.9	17
Edisto: Givhans Ferry, S. C.	10	1	29	12.0 13.15	10 23
Savannah: Butler Creek, Ga.	21	17	18	23.0	18
Millhaven, Ga.	15	8 20	16 29	16.1 16.7 18.8	8 13-14 22
Clyo, Ga.	11			14.4 15.3 17.3	12 17-18 25-26
Ogeechee: Midville, Ga.	6	21	21	6.4	21
Dover, Ga.	7	16	27	7.4 8.4	17 24
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.	15	1 10	3 30	15.3 20.4	3 20
Tombigbee: Amory, Miss.	20	30	1/		
Fulton, Miss.	16	17 27	18 28	16.6 16.2	17 28
Macon, Miss.	20	29	1/		
Tibbie, Miss.	23	28	1/		
Lock 3, Whitfield, Ala.	33	Mar. 28 29	2 1/		
Pearl: Edinburg, Miss.	20	30		20.4 21.1	30
Jackson, Miss.	18	Mar. 9 29	Apr. 3 1/	21.1 21.1	1 30
Bogalusa, La.	15	Mar. 6 10 25 30	8 13 26 1/	18.5 15.8 15.6 15.9	1 13 15-16 30
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Big Muddy: Murphysboro, Ill.	16	25 28	4 1/	#23.9	29
Missouri Basin					
South Fork Solomon: Osborne, Kans.	12	1 3	2 3	15.2 14.4	2 3
South Grand: Brownington, Mo.	19	5	7	#22.1	6
Osage: Shell City, Mo.	25	4	9	#28.6	7
Ohio Basin					
Allegheny: Olean, N. Y.	10	6	9	11.4	7
Cheat: Parsons, W. Va.	11	6	7	11.5	7
Scioto: Piketon, Ohio	16	29	May 1	19.2	30
Green: Lock 4, Woodbury, Ky.	33	29	1/	34.4	30
Middle Fork Saline: Harrisburg, Ill.	13	27	1/	17.8	30

FLOOD STAGE DATA

(All dates in April unless otherwise specified)

APRIL 1958

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
Cumberland: Williamsburg, Ky.	21	30	30	21.2	30
South Chickamauga Creek: Chickamauga, Tenn.	10	28	May 1	13.9	30
Tennessee: Florence, Ala.	18	29	May 3	20.4	May 1
Whitesburg, Ala.	560	29	1/	564.7	30
White Basin					
Black: Pocahontas, Ark.	17	Mar. 24	10	22.2	Mar. 29
Black Rock, Ark.	14	Mar. 25	16	23.4	Mar. 30
White: Augusta, Ark.	32	1	11	32.4	7
Georgetown, Ark.	21	Mar. 27 12	10 16	22.2 21.8	7 12
Des Arc, Ark.	24	3	14	24.7	10
Clarendon, Ark.	26	Mar. 24	1	28.2	11
St. Charles, Ark.	25	Mar. 28	1	26.2	15
Arkansas Basin					
Verdigris: Independence, Kans.	30	4	4	31.9	4
Neosho: Oswego, Kans.	17	4	5	18.3	5
Red Basin					
Caddo: Glenwood, Ark.	10	27	29	14.8	27
Little Missouri: Boughton, Ark.	20	28	29	21.1	28
Ouachita: Arkadelphia, Ark.	17	27	28	20.6	27
Camden, Ark.	28	28	1/	43.85	May 5
Little: Whitecliffs, Ark.	25	29	1/		
Sulphur: Naples, Tex.	22	27	1/		
Cypress: Jefferson, Tex.	18	29	1/		
Lower Mississippi Basin					
St. Francis: Fisk, Mo.	20	Mar. 24 29	11 1/	24.45	Mar. 31
St. Francis, Ark.	18	Mar. 23	17	21.8	Mar. 29
Tallahatchie: Swan Lake, Miss.	26	29	1/		
Yazoo: Yazoo City, Miss.	29	30	1/		
Big Black: Borina, Miss.	28	30	1/	39.9	May 6

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
WEST GULF OF MEXICO DRAINAGE					
Sabine Mineola, Tex.	14	27	1		
Gladewater, Tex.	26	28	1		
Trinity: Dallas, Tex.	30	26 30	28 1/	34.6	27
Rockwall, Tex.	10	27	27	13.3	27
Rosser, Tex.	26	27	1	32.45	29
Trinidad, Tex.	28	28	1		
Long Lake, Tex.	40			#42.7	May 3
Rio Grande: Espanola, N. Mex.	7	20	29	7.7	26
Albuquerque, N. Mex.	6	21	29	6.7	24
PACIFIC SLOPE DRAINAGE					
California Coast Drainage					
Cosumnes: McConnell, Calif.	43A	1	5	46.1	3
Mokelumne: Bensons Ferry, Calif.	12	3	4	17.8	4
San Joaquin: Vernalis, Calif.	25	4	13	26.7	5
Sacramento: Moulton Weir, Calif.	77	2	11	80.6	4
Colusa Weir, Calif.	62	Mar. 21	16	67.5	4
Tisdale Weir, Calif.	45	Mar. 21	27	50.0	4
Fremont Weir, Calif.	34	Mar. 22	27	37.2	1
Rio Vista, Calif.	9	2	8	9.8	2,6,7
Pajaro: Chittenden Pass, Calif.	32	3	4	33.1	3
Russian: Guerneville, Calif.	29	2	3	33.2	3
Columbia Basin					
McKenzie: Leaburg, Oreg.	12	21	21	12.0	21
Santiam: Jefferson, Oreg.	13	20	21	14.7	21
Pudding: Aurora, Oreg.	15	22	24	15.6	23

* Provisional
Highest Stage Observed
1/ Continued at the end of month
A Tentative

* Provisional
Highest Stage Observed
1/ Continued at the end of month
A Tentative

Average monthly values

APRIL 1958

See reference note at end of table

Average monthly values

APRIL 1958

CARIBOU, ME. (992 MB.)							CHARLESTON, S. C. (1014 MB.)							COLD BAY, ALASKA (1005 MB.)							COLUMBIA, MO. (986 MB.)							DAYTON, OHIO (980 MB.)						
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind					
				Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					
SURFACE	30	191	1.9	82	337	2.5	30	13	13.6	91	0.0	30	27	2.0	84	139	7.8	30	238	7.5	81	153	1.0	30	297	6.4	72	72	0.8					
1,000--	30	123					30	131	15.2	78	182	1.4	30	65		149	1.0	30	116					30	126									
950----	30	538					30	561	14.8	67	239	4.1	30	475		115	1.2	30	543	8.8	64	171	1.7	30	545	7.8	64							
900----	30	972	- 1.4	70	321	2.5	30	339	3.5	57	339	3.5	30	906	- 2.6	75	320	2.1	30	988	6.8	61	245	3.5	30	934	6.8	61						
850----	30	1,428	2.3	64	313	4.7	30	1,093	12.7	61	245	5.8	30	1,359	4.3	69	22	2.7	30	1,456	5.0	59	259	6.4	30	1,462	4.6	58						
800----	30	1,907	- 4.5	61	303	5.4	30	2,003	7.1	57	268	10.7	30	1,835	- 6.3	62	79	1.4	30	1,950	3.0	53	264	8.4	30	1,955	2.0	58						
750----	30	2,413	- 6.6	56	286	7.4	30	2,527	4.2	50	267	14.4	30	2,338	- 8.8	57	105	2.3	30	2,468	4.4	55	266	11.1	30	2,470	- 7	53						
700----	30	2,951	- 8.6	53	278	11.7	30	3,091	1.7	40	272	18.8	30	2,869	-11.9	52	99	8	30	3,021	- 2.7	54	267	15.3	30	3,022	- 3.6	48						
650----	30	3,522	-11.4	50	288	13.8	30	3,683	- 1.7	40	271	23.1	30	3,429	-15.3	49	224	1.0	30	3,595	- 6.1	53	266	18.3	30	3,598	- 6.8	46						
600----	30	4,134	-14.6	46	281	15.5	30	4,318	- 5.7	41	271	26.6	30	4,033	-19.1	47	312	6	30	4,227	- 9.8	51	264	23.7	30	4,226	-10.4	44						
550----	30	4,785	-18.4	44	283	16.9	30	4,986	- 9.7		275	29.9	30	4,668	-23.2	48	117	2.7	30	4,886	-14.1	47	263	24.9	30	4,882	-14.6	40						
500----	30	5,494	-23.0		278	24.1	30	5,725	-14.6		272	31.9	30	5,366	-27.8	44	124	6.0	30	5,611	-19.0	42	263	26.4	30	5,607	-19.6	38						
450----	30	6,150	-28.3		279	28.2	29	6,503	-20.1		272	37.1	30	6,196	-32.8		276	6.4	30	6,368	-24.4	41	259	30.7	30	6,374	-25.1	39						
400----	29	7,096	-34.4		277	27.8	29	7,373	-26.6		270	42.0	30	6,936	-38.7		100	6.6	30	7,233	-31.1	43	261	33.8	30	7,228	-31.1	41						
350----	29	8,016	-41.4		273	30.7	29	8,325	-33.5		272	49.0	30	7,840	-45.2		150	5.2	30	8,166	-38.1		262	39.8	30	8,162	-38.1	268						
300----	29	9,046	-48.8		275	33.6	29	9,390	-41.2		272	52.3	29	8,847	-51.1		180	3.3	30	9,210	-45.8		261	47.8	30	9,205	-46.1	269						
250----	28	10,233	-54.9		270	40.2	28	10,600	-50.1		272	63.0	29	10,022	-54.4		283	5.8	30	10,404	-53.0		259	55.6	30	10,395	-54.0	267						
200----	27	11,445	-55.8		267	38.9	28	12,031	-57.2		272	72.5	29	11,454	-53.2		270	9.1	30	11,824	-57.1		261	57.9	30	11,812	-58.2	268						
175----	26	12,691	-53.5		260	36.2	26	12,872	-58.7		275	72.9	27	12,332	-58.0		264	11.3	30	12,670	-56.8		263	55.6	30	12,653	-57.6	270						
150----	26	13,485	-52.6		268	31.7	27	13,844	-59.2		276	65.1	27	13,332	-51.3		251	9.9	30	13,648	-56.3		266	55.8	29	13,628	-55.8	270						
125----	25	14,658	-52.6		268	26.8	26	14,981	-60.9		273	57.3	24	14,324	-50.9		249	6.9	30	14,808	-56.2		265	47.8	29	14,789	-55.7	269						
100----	23	16,094	-52.7		265	23.9	26	16,362	-63.4		273	42.6	24	15,977	-61.1		248	9.5	30	16,224	-57.0		266	35.8	28	16,207	-56.7	271						
80----	22	17,539	-52.2		262	20.0	25	17,736	-62.9		273	30.3	22	17,439	-52.2		283	6.8	29	17,636	-56.2		262	25.8	29	17,622	-56.3	267						
60----	19	19,394	-51.6		270	16.7	24	19,524	-58.7		285	13.2	17	19,334	-53.6		255	5.4	27	19,471	-54.7		259	15.5	29	19,459	-54.2	265						
50----	19	20,578	-51.2		269	15.9	24	20,679	-55.6		312	4.9	17	20,508	-53.5		279	5.8	27	20,645	-52.4		258	11.3	28	20,634	-52.7	270						
40----	17	22,020	-50.3		270	16.1	24	22,109	-52.9		86	6.0	17	21,946	-53.2		287	6.8	26	22,095	-49.7		254	6.2	28	22,083	-50.8	268						
30----	15	23,888	-49.6		263	16.3	17	23,975	-49.3		66	5.6	15	23,802	-53.7		300	2.3	24	23,986	-47.3		237	2.5	25	23,960	-48.5	288						
25----	14	25,089	-49.3		268	18.1	9	25,171	-47.5				9	24,936	-53.3				20	25,201	-45.6		269	5.2	23	25,158	-47.7	285						
20----	13	26,563	-48.5																						15	26,629	-46.1	290						
15----	8	28,437	-46.3																															

DENVER, COLO. (835 MB.)										DODGE CITY, KANS. (922 MB.)										EL PASO, TEX (879 MB.)										ELY, NEV. (807 MB.)										FAIRBANKS, ALASKA (996 MB.)									
SURFACE	30	1,611	0.9	76	206	0.8	30	792	5.2	85	330	2.5	30	1,197	11.7	46	275	3.5	30	1,908	- 2.2	76	181	4.1	30	135	- 2.6	75	346	1.7																			
1,000---	30	132					30	123			30		30	96					30	167					30	101			253	2.1																			
950----	30	552					30	546			30		30	532					30	585					30	510	- 1	55	300	1																			
900----	30	997					30	991	7.2	71	28	2.5	30	993					30	1,026					30	944	- .6	53	231	3.9																			
850----	30	1,463					30	1,461	6.5	58	304	3.3	30	1,475	13.7	37	296	4.9	30	1,491					30	1,399	- 3.2	55	232	6.4																			
800----	30	1,955	2.9	61	788	3.1	30	1,957	4.3	56	297	6.8	30	1,983	10.5	37	283	11.7	30	1,977					30	1,876	- 6.2	35	229	8.4																			
750----	30	2,472	- 2	57	287	7.4	30	2,479	1.7	53	297	8.2	30	2,478	7.2	34	271	16.7	30	2,495	- 4	55	312	3.5	30	2,381	- 9.4	54	230	9.9																			
700----	30	3,029	- 3	1	291	10.5	30	3,033	- 1.6	52	286	10.7	30	3,082	- 3.3	31	265	21.6	30	3,044	- 4.3	54	306	9.1	30	2,821	- 10.2	50	229	11.1																			
650----	30	3,601	- 7	0	287	14.4	30	3,618	- 5.0	52	279	15.7	30	3,671	- 1.2	32	267	19.8	30	3,622	- 8.5	54	299	13.6	30	3,468	-16.3	45	234	12.2																			
600----	30	4,227	-11.5	53	286	18.7	30	4,245	- 9.0	51	271	20.6	30	4,312	- 5.4	30	268	20.0	30	4,241	-12.5	49	287	15.0	30	4,068	-20.4	44	232	12.8																			
550----	30	4,884	-15.8	48	283	20.6	30	4,909	-13.5	43	266	23.9	30	4,981	- 9.7		259	29.4	30	4,897	-16.7	43	287	18.5	30	4,705	-24.8	46	232	15.0																			
500----	30	5,601	-20.8	41	281	20.4	30	5,631	-18.7	42	269	26.4	30	5,720	-14.8		263	34.0	30	5,611	-21.6	38	291	20.0	30	5,394	-30.0	43	231	14.4																			
450----	30	6,366	-26.7	40	276	25.1	30	6,402	-24.4	38	268	30.3	30	6,503	-20.4		263	39.4	30	6,374	-27.0		297	20.8	30	6,133	-35.2	45	234	14.2																			
400----	30	7,210	-33.1	37	277	26.8	30	7,257	-30.8	36	270	32.3	30	7,373	-26.8		262	46.8	30	7,219	-33.1		293	24.1	30	6,950	-41.0		239	15.0																			
350----	30	8,136	-40.3		272	31.3	30	8,190	-37.9		271	35.6	30	8,323	-33.5		263	48.6	30	8,145	-40.0		286	23.7	30	7,845	-47.6		248	17.9																			
300----	30	9,171	-47.7		272	40.4	30	9,235	-45.5		266	35.9	30	9,388	-41.1				30	9,182	-47.2		275	19.4	30	8,849	-53.6		248	13.4																			
250----	30	10,356	-54.8		278	48.2	29	10,437	-52.4		274	41.0	30	10,606	-49.2				29	10,371	-53.6		299	19.2	30	10,011	-56.5		253	13.8																			
200----	30	11,772	-57.5		271	46.2	28	11,860	-56.4		275	50.5	29	12,049	-56.6				28	11,786	-57.8				30	11,432	-64.7		227	12.2																			
175----	30	12,617	-57.2		267	46	28	12,707	-56.5		275	51.5	29	12,889	-59.6				27	12,633	-58.3				30	12,290	-53.3		229	11.1																			
150----	30	13,594	-56.3		268	46	28	13,686	-56.5		274	44.7	29	13,869	-61.5				27	13,606	-56.9				30	13,285	-52.1		230	10.9																			
125----	30	14,752	-56.7		267	40.8	28	14,844	-56.7		272	41.8	27	14,970	-62.5				27	14,756	-57.8				29	14,472	-51.7		238	7.2																			
100----	30	16,169	-57.0		267	33.8	26	16,259	-57.8		26	16,340	-65.5						26	16,163	-57.9				29	15,920	-51.8		249	6.0																			
80----	30	17,580	-57.2		267	23.7	25	17,665	-58.8		26	17,698	-64.8						26	17,567	-57.7				28	17,363	-52.3		252	6.0																			
60----	30	19,405	-55.6		265	14.4	23	19,486	-55.8		25	19,478	-58.9						26	19,388	-55.5				27	19,222	-53.0		271	6.0																			
40----	30	20,572	-53.8		266	11.3	22	20,653	-53.3		25	20,630	-55.9						26	20,555	-52.9				26	20,397	-53.5		278	5.8																			
20----	30	22,013	-52.0		261	8.5	21	22,097	-50.8		25	22,065	-51.6						26	22,001	-50.7				27	21,831	-54.1		280	7.8																			
30----	27	23,883	-49.5		268	10.1	13	23,986	-48.6		19	23,938	-48.1						24	23,880	-48.4				25	23,675	-55.0		292	11.9																			
25----	25	25,082	-48.2		250	10.0	10	25,200	-47.6		12	25,149	-46.1						17	25,077	-47.6				22	24,825	-55.9																						
20----	5	26,499	-49.3																17	26,222	-56.7				19	27,986	-58.6																						
15----																																																	

FLINT, MICH. (987 MB.)										FORT WORTH, TEX. (992 MB.)										GLASGOW, MONT. (933 MB.)										GRAND JUNCTION, COLO. (849 MB.)										GREAT FALLS, MONT. (885 MB.)									
SURFACE	30	234		2.6	81	46	1.0	30	180	13.4	79	282	0.6	30	696		2.0	77	80	1.9	30	1,474		4.4	55	113	4.1	30	1,123		3.0	64	227	7.4															
1,000--	30	129						30	113					30	128						30	115						30	121																				
950--	30	545	5.4	63	111	1.0	30	543	13.1	71	225	2.5	30	544							30	535						30	543																				
900--	30	987	4.0	58	228	2.1	30	1,001	12.1	65	248	5.4	30	986	4.2	62	240	2.1	30	988							30	990																					
850--	30	1,451	2.2	57	269	5.2	30	1,479	11.0	57	256	10.9	30	1,449	1.6	59	276	4.7	30	1,461							125	3.5	30	1,452		3.0	56	244	9.1														
800--	30	1,939		47	280	8.0	30	1,984	9.1	50	257	15.2	30	1,935	-1.7	58	291	5.6	30	1,958	5.3	44	170	2.7	30	1,941		30	1,941		-3.3	59	263	8.0															
750--	30	2,451	-2.4	46	280	10.7	30	2,512	6.4	42	262	17.9	30	2,445	-5.2	60	286	7.8	30	2,477	1.7	47	234	4.1	30	2,448		30	2,448		-4.1	62	277	8.9															
700--	30	2,999	-5.3	44	276	12.8	30	3,079	2.8	40	265	20.4	30	2,985	-8.1	56	281	8.9	30	3,034	-2.6	50	252	7.8	30	2,995		30	2,995		-8.0	63	282	9.9															
650--	30	3,571	-8.5	41	274	15.3	30	3,670	-1.1	40	268	23.5	30	3,552	-11.7	49	274	10.7	30	3,610	-5.4	53	263	11.5	30	3,562		30	3,562		-11.6	62	280	13.0															
600--	30	4,194	-12.3	41	273	19.4	30	4,300	-4.4	35	265	26.4	30	4,166	-15.7	51	278	12.6	30	4,235	-11.6	51	265	12.5	30	4,177		30	4,177		-15.4	59	280	14.0															
550--	30	4,847		41	273	22.9	30	4,976	-10.5	36	264	34.4	30	4,811	-20.0	50	274	12.4	30	4,889	-16.1	44	268	15.9	30	4,823		30	4,823		-19.8	56	273	15.5															
500--	30	5,565	-21.2	40	272	25.5	30	5,712	-15.3		264	39.2	30	5,516	-25.2	45	270	15.2	30	5,606	-21.5	43	273	19.4	30	5,531		30	5,531		-24.7	51	270	16.7															
450--	30	6,328	-26.6	37	272	30.5	30	6,489	-21.1		261	44.7	30	6,259	-30.9	44	269	15.2	30	6,366	-27.0	43	269	22.2	30	6,282		30	6,282		-30.5	46	268	19.6															
400--	30	7,176	-32.9		269	33.6	30	7,359	-27.4		262	50.7	30	7,098	-37.3	47	239	15.7	30	7,214	-33.0	40	273	23.3	30	7,117		30	7,117		-37.0		271	19.6															
350--	30	8,102	-39.9		268	36.1	30	8,307	-34.5		264	57.5	30	8,007	-44.7		241	14.0	30	8,140	-40.0		280	15.2	30	8,026		30	8,026		-44.6		261	25.5															
300--	30	9,138	-47.7		268	39.1	30	9,367	-42.2		265	67.2	30	9,020	-52.9		237	14.6	30	9,176	-47.5		331	5.2	30	9,040		30	9,040		-52.0		267	29.9															
250--	30	10,322	-54.9		268	46.8	30	10,579	-50.0		266	79.3	30	10,179	-58.3		242	15.5	30	10,361	-54.7		246	8.4	30	10,206		30	10,206		-56.8		270	24.1															
200--	30	11,735	-57.6		265	48.6	30	12,013	-56.7		269	88.6	30	11,585	-67.1		265	17.9	30	11,779	-57.1		282	14.8	30	11,618		30	11,618		-57.1		272	24.5															
150--	30	12,581	-56.2		266	45.5	30	12,855	-58.5		268	88.8	30	12,433	-55.7		258	14.0	30	12,624	-57.1				30	12,464		30	12,464		-56.2		270	24.7															
100--	30	13,564	-54.4		268	38.9	30	13,820	-60.7		267	76.7	30	13,419	-54.2		258	14.4	30	13,602	-56.3				30	13,449		30	13,449		-54.2		268	24.5															
75--	29	14,730	-54.6		268	33.2	27	14,937	-62.1		268	59.5	29	14,586	-53.9		258	16.9	27	14,759	-57.2				30	14,620		30	14,620		-53.7		274	22.0															
50--	28	16,161	-55.0		267	30.5	27	16,309	-64.3		266	48.8	29	16,021	-53.4		261	16.3	29	16,144	-56.1				29	16,049		30	16,049		-54.4		276	18.1															
25--	28	17,588	-54.5		268	24.5	26	17,677	-63.7		268	33.2	28	17,459	-53.5		256	15.3	16	17,531	-57.9				28	17,481		30	17,481		-54.4		266	18.1															
0--	25	19,425	-52.9		272	18.1	24	19,457	-60.1		252	12.4	28	19,311	-53.4		256	12.0	15	19,354	-55.0				28	19,328		30	19,328		-54.1		265	15.5															
50--	25	20,605	-51.6		268	16.7	24	20,603	-57.0		266	6.0	28	20,486	-52.9		260	12.0	14	20,517	-52.9				28	20,500		30	20,500		-53.3		266	13.8															
40--	22	22,062	-49.8		269	15.5	22	22,024	-54.1		127	1.7	28	22,928	-52.4		265	13.0	14	21,964	-54.9				26	21,938		30	21,938		-52.6		266	13.8															
30--	22	23,960	-48.0		268	15.9	22	23,875	-50.7		27	5.4	29	23,796	-50.6		267	13.7	7	23,864	-48.5				27	23,796		30	23,796		-51.7		267	13.8															
20--	17	25,182	-46.8								14	8.2	15	24,976	-51.2												20	24,972		30	24,972		-51.3		269	19.0													
15--											17	26,534	-46.5		55	4.5		5	26,392	-51.3							10	26,389		30	26,389		-51.4																
10--											13	28,453	-43.2		317	3.9																																	

See reference note at end of table

RAWINSONDE DATA

Average monthly values

APRIL 1958

GREEN BAY, WIS. (989 MB.)							GREENSBORO, N. C. (984 MB.)							HILO, T. H. (1018 MB.)							INTERNAT. FALLS, MINN. (971 MB.)							JACKSON, MISS. (1003 MB.)												
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind											
					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed										
SURFACE	30	210	1.6	81	356	1.7	30	273	9.2	84	28	1.7	30	11	19.5	85	245	4.5	30	360	0.6	65	21	0.8	30	101	13.5	88	175	0.6										
1,000----	30	120					30	140					30	169	20.4	77	268	2.1	30	122					30	123														
950----	30	541	4.8	54	76	1.0	30	568	11.3	65	341	2.3	30	606	17.3	80	82	5.1	30	537	2.2	59	211	1.9	30	559	14.8	65	228	5.6										
900----	30	976	3.2	50	104	1.6	30	1,018	9.8	62	272	3.5	30	1,070	14.0	84	91	6.2	30	973	1.7	54	268	4.7	30	1,015	13.3	57	241	8.7										
850----	30	1,438	1.4	45	309	1.7	30	1,493	7.9	61	268	8.9	30	1,551	11.1	85	102	6.0	30	1,432	- .5	54	279	4.7	30	1,494	11.1	55	250	12.2										
800----	30	1,924	- .7	46	270	3.7	30	1,991	5.2	63	272	13.0	30	2,056	8.8	80	102	7.2	30	1,914	- 3.0	53	285	6.2	30	1,999	8.7	48	261	16.9										
750----	30	2,434	- 3.4	43	273	7.8	30	2,516	2.6	56	272	15.9	30	2,593	9.3	37	90	6.8	30	2,419	- 5.9	51	281	7.8	30	2,529	5.8	45	264	19.2										
700----	30	2,980	- 6.4	40	270	10.3	30	3,072	- .4	52	272	18.8	30	3,162	8.0		79	3.7	30	2,961	- 8.7	46	283	9.7	30	3,092	2.5	46	267	22.7										
650----	30	3,547	-10.0	39	267	10.7	30	3,659	- 3.6	46	275	22.0	30	3,771	5.1		48	1.0	30	3,525	-11.8	41	282	11.5	30	3,686	- .9	42	267	27.8										
600----	30	4,168	-13.8	40	264	11.1	30	4,290	7.3	44	275	24.1	30	4,419	1.5		271	2.5	30	4,141	-15.5	38	284	14.4	30	4,322	- 5.2	38	270	29.7										
550----	30	4,821	-17.8	42	261	13.0	30	4,956	-11.6	43	275	26.2	30	5,109	- 2.8		266	6.6	30	4,790	-19.9	40	286	16.7	30	4,993	9.8	37	269	32.4										
500----	30	5,531	-22.5	40	258	16.3	30	5,687	-16.4	44	268	28.6	30	5,862	- 7.7		266	11.7	30	5,494	-24.8	38	280	19.2	30	5,728	-15.0		269	35.2										
450----	30	6,288	-28.2	42	261	19.2	30	6,465	-22.0	41	267	29.3	30	6,670	-12.9		277	16.5	30	6,245	-30.5	38	279	19.8	30	6,511	-20.0		269	40.6										
400----	30	7,130	-34.4	43	258	23.5	30	7,328	-28.4		265	31.5	30	7,561	-19.1		274	25.8	30	7,080	-37.2		277	23.9	30	7,382	-26.1		268	48.4										
350----	30	8,051	-41.3		260	24.7	30	8,272	-35.3	36	261	35.0	29	8,543	-25.3		271	35.0	30	7,989	-44.4		278	27.6	30	8,334	-33.0		271	54.0										
300----	30	9,080	-49.0		267	29.3	30	9,328	-43.2		252	37.3	29	9,646	-33.1		270	45.3	30	9,006	-51.6		276	30.5	30	9,402	-40.8		270	60.4										
250----	30	10,256	-56.3		269	28.8	30	10,535	-51.0		255	35.9	29	10,903	-42.4		268	51.3	30	10,174	-56.9		276	32.6	30	10,615	-48.8		272	70.9										
200----	30	11,667	-56.8		279	27.6	30	11,966	-56.9		272	41.8	29	12,376	-53.6		272	52.1	30	11,584	-56.9		272	33.4	29	12,055	-56.7		270	77.1										
175----	30	12,517	-55.4		271	28.2	30	12,810	-57.2		272	42.2	29	13,223	-59.7		274	46.6	30	12,434	-55.0		270	31.5	29	12,895	-59.6		271	80.4										
150----	30	13,503	-54.2		271	28.6	30	13,786	-57.1		271	39.1	29	14,172	-66.1		277	36.7	30	13,424	-53.1		270	29.3	29	13,858	-60.4		271	68.8										
125----	30	14,674	-53.8		277	27.4	30	14,938	-57.9		267	36.1	29	15,261	-72.2		276	32.4	29	14,600	-52.8		268	27.0	29	14,990	-62.4		269	56.0										
100----	30	16,107	-54.5		271	23.9	30	16,341	-59.1		260	31.9	25	16,559	-75.8		272	18.8	29	16,042	-52.4		269	25.3	29	16,363	-63.6		266	39.4										
80----	30	17,541	-53.5		272	21.8	30	17,740	-59.2		260	22.3	25	17,846	-75.5		273	14.6	29	17,484	-52.6		269	22.3	29	17,731	-63.9		264	27.0										
60----	30	19,397	-52.4		270	16.7	30	19,556	-56.2		264	14.6	25	19,541	-68.0		307	6.0	29	19,344	-51.9		270	17.9	28	19,516	-58.8		267	8.5										
40----	30	20,580	-51.3		273	18.3	30	20,719	-54.7		268	9.1	25	20,652	-62.6		72	4.9	29	20,527	-51.2		268	17.1	28	20,669	-56.0		264	17.7										
20----	30	22,035	-50.2		278	20.0	30	22,153	-53.0		149	1.2	24	22,044	-57.9		105	6.8	27	21,981	-50.7		267	15.9	26	22,106	-52.3		268	7.0										
25----	11	25,083	-49.5		263	20.2	27	24,024	-50.4		21	23,887	-52.4		87	8.7	22	23,848	-50.2		271	18.5	19	23,971	-48.6		25	23,971	-48.6		95	10.5								
20----							13	25,217	-48.9				14	25,068	-50.5				17	25,029	-49.2		279	21.6	13	25,181	-46.5													
15----																			5	26,428	-49.2																			

JACKSONVILLE, FLA. (1015 MB.)										KING SALMON, ALASKA (1008 MB.)										KOTZEBUE, ALASKA (1012 MB.)										LAKE CHARLES, LA. (1013 MB.)										LANDER, WYO. (826 MB.)									
SURFACE	30	6	15.3	91	267	0.8	30	15	- 0.8	78	81	2.5	30	5	- 8.4	81	117	4.3	30	5	16.7	87	133	1.2	30	1,696	0.4	73	271	2.7																			
1,000----	30	136	16.9	78	253	1.7	30	78			173	3.1	30	97	- 7.5	76	136	4.1	30	114	17.0	83	139	2.7	30	130																							
950----	30	570	16.4	65	228	4.5	30	490		70	102	3.3	30	497	- 5.6	70	140	5.8	30	552	16.2	73	194	4.3	30	548																							
900----	30	1,034	14.2	62	245	6.6	30	923	- 1.5	66	137	4.9	30	922	- 6.3	69	144	5.1	30	1,012	14.9	61	219	7.0	30	994																							
850----	30	1,515	12.0	54	248	8.5	30	1,376	- 3.6	63	160	4.9	30	1,368	- 7.0	65	155	3.9	30	1,495	13.2	45	236	9.7	30	1,462																							
800----	30	2,021	9.7	47	253	12.2	30	1,853	- 6.1	57	161	7.2	30	1,839	- 9.2	62	179	4.9	30	2,004	11.6	35	247	13.6	30	1,951	1.0	63	305	4.1																			
750----	30	2,551	7.1	39	263	15.9	30	2,358	- 8.8	54	169	8.0	30	2,330	-12.1	58	199	5.6	30	2,538	8.2	39	261	18.3	30	2,464	- 1.9	60	312	6.4																			
700----	30	3,119	3.7	41	267	19.2	30	2,888	-11.4	49	176	10.1	29	2,859	-15.4	53	207	8.5	30	3,107	4.8	37	275	20.8	30	3,013	- 5.4	61	307	8.9																			
650----	30	3,714	- .3	37	274	23.1	30	3,451	-15.3	47	172	9.3	29	3,407	-18.6	49	216	9.3	30	3,704	- .8	39	275	24.7	30	3,585	- 9.1	58	303	9.9																			
600----	30	4,355	- 3.7	35	277	27.4	30	4,053	-19.0	44	168	9.3	29	4,006	-22.3	47	219	10.3	30	4,346	- 3.9	39	271	28.8	30	4,207	-13.1	51	292	13.8																			
550----	29	5,033	- 7.9		276	31.3	30	4,692	-23.2	45	171	9.7	29	4,634	-26.3	42	226	11.5	30	5,020	- 8.6		270	30.7	30	4,857	-17.9	47	282	14.4																			
500----	29	5,774	-12.8		278	37.5	30	5,389	-27.7	46	183	8.9	29	5,324	-30.8	40	233	12.6	29	5,761	-13.3		274	35.4	30	5,569	-23.5	45	285	15.7																			
450----	29	6,561	-18.5		276	39.2	30	6,134	-32.8	46	191	9.1	29	6,060	-35.9		229	15.2	29	6,551	-18.7		274	35.9	30	6,322	-29.3	41	288	14.6																			
400----	29	7,439	-24.7		276	44.1	30	6,935	-38.9		188	9.5	29	6,861	-41.3		244	18.7	29	7,424	-24.8		368	38.3	30	7,193	-36.8	36	292	15.3																			
350----	29	8,319	-31.9		276	49.9	30	7,791	-45.7		206	9.7	29	7,699	-48.7		241	20.8	29	8,311	-32.0		268	44.1	30	8,076	-43.8		272	16.7																			
300----	29	9,472	-39.3		276	59.1	30	8,873	-52.5		206	9.7	29	8,770	-53.7		241	20.8	29	9,452	-40.1		264	46.6	30	9,096	-50.8		253	15.9																			
250----	29	10,699	-47.7		276	71.1	30	10,040	-56.1		216	10.5	29	9,933	-55.8		238	14.8	29	10,673	-48.9		266	59.1	30	10,267	-56.9		272	12.0																			
200----	27	12,140	-56.5		278	81.2	30	11,463	-54.5		219	10.1	29	11,372	-52.2		234	11.9	28	12,112	-57.3		273	62.6	30	11,674	-58.0		278	22.9																			
175----	27	12,982	-59.2		279	83.5	30	12,321	-53.0		217	9.7	29	12,239	-50.7		229	10.9	27	12,949	-60.7				30	12,517	-57.5		272	23.5																			
150----	26	13,945	-61.4		276	74.2	30	13,318	-51.1		231	8.9	29	13,245	-50.1		242	9.1	25	13,909	-63.4				30	13,494	-56.1		266	26.6																			
125----	24	15,075	-64.2		275	60.0	28	14,512	-51.4		237	8.4	29	14,438	-49.8		238	9.9	24	15,019	-66.1				30	14,605	-55.3		269	22.7																			
100----	24	16,439	-66.8		274	44.9	27	15,957	-52.9		247	8.6	29	15,896	-50.6		230	11.1	24	16,364	-68.3				29	16,070	-56.3		267	22.5																			
80----	24	17,783	-65.8		274	29.5	27	17,399	-52.0		260	5.6	27	17,353	-51.1		234	9.1	24	17,710	-66.1				29	17,487	-56.6		272	16.5																			
60----	22	19,541	-61.6		290	6.4	24	19,257	-52.7		263	4.1	23	19,221	-51.7		237	9.9	23	19,477	-60.5				29	19,315	-55.6		271	13.8																			
40----	21	20,681	-58.4		17	2.7	23	20,434	-52.9		279	4.7	23	20,403	-52.1		279	4.3	22	20,628	-56.6				28	20,479	-54.4		248	11.5																			
400----	21	22,096	-55.0		70	8.0	21	21,882	-53.0		305	2.9	23	21,845	-52.8		264	7.2	22	22,057	-52.5				27	21,917	-52.3		260	14.0																			
200----	20	23,953	-50.7		84	13.6	14	23,749	-53.7		320	5.8	19	23,717	-53.9		252	7.6	18	23,927	-48.5				15	23,793	-50.4																						
25----	15	25,155	-48.2		11	24.913	11	24,913	-53.7				16	24,919	-54.5		277	7.0	9	25,131	-46.2				7	24,964	-49.4																						
200----													9	26,376	-54.8				6	26,626	-43.5																												

RAWINSONDE DATA

Average monthly values

APRIL 1958

MIDLAND, TEX. (914 MB.)										MONTGOMERY, ALA. (1008 MB.)										NANTUCKET, MASS. (1013 MB.)										NASHVILLE, TENN. (994 MB.)										N. Y. INT. AP, IDLEWILD (1015 MB.)									
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind									
										Direction	Speed									Direction	Speed									Direction	Speed							Direction	Speed										
SURFACE	30	871	10.1	75	74	1.7						30	61	13.9	84	168	0.6	30	14	6.4	85	342	3.1	30	177	10.2	86	257	1.0	30	5	7.9	74	342	4.3	30	128	7.5	68	341	4.5								
1,000---	30	110										30	127	14.8	78	135	8.3	30	119			267	2.1	30	122																								
950----	30	543										30	565	14.9	60	221	4.3	30	538	5.8	70	285	4.7	30	548	11.9	64	177	2.1	30	551	6.6	64	326	4.9	30	551	6.6	64	326	4.9								
900----	30	996	11.4	66	107	1.9	30	1,019	13.0	58	237	7.6	30	1,019	13.0	58	237	7.6	30	982	4.3	64	287	7.4	30	1,003	10.1	63	239	5.2	30	993	5.1	56	308	5.6	30	993	5.1	56	308	5.6							
850----	30	1,474	11.5	51	231	5.2	30	1,498	10.8	54	249	9.9	30	1,446	2.2	62	280	10.1	30	1,477	7.7	60	253	6.4	30	1,458	2.7	58	306	8.7	30	1,458	2.7	58	306	8.7	30	1,458	2.7	58	306	8.7							
800----	30	1,981	10.4	44	252	12.0	30	2,002	8.4	47	256	12.8	30	1,935	-5	56	284	11.9	30	1,974	5.0	57	266	9.1	30	1,947	6.7	59	282	9.9	30	1,947	6.7	59	282	9.9	30	1,947	6.7	59	282	9.9							
750----	30	2,516	7.5	40	257	17.3	30	2,538	5.8	40	258	17.3	30	2,452	-1.7	56	283	15.5	30	2,496	1.7	61	264	13.0	30	2,465	1.6	56	280	14.8	30	2,465	1.6	56	280	14.8	30	2,465	1.6	56	280	14.8							
700----	30	3,081	3.9	35	261	21.2	30	3,096	2.6	40	261	20.6	30	2,998	-1.2	50	278	15.7	30	3,052	-1.5	61	261	14.6	30	3,011	-4.2	50	277	17.5	30	3,011	-4.2	50	277	17.5	30	3,011	-4.2	50	277	17.5							
650----	30	3,677	-4.3	35	261	23.5	30	3,691	-1.1	40	263	24.7	30	3,578	-7.2	48	274	15.7	30	3,634	-4.7	56	264	17.9	30	3,594	-7.1	45	283	18.7	30	3,594	-7.1	45	283	18.7	30	3,594	-7.1	45	283	18.7							
600----	30	4,314	-4.7	33	256	26.0	30	4,326	-5.1	40	263	27.8	30	4,200	-10.9	47	275	22.3	30	4,265	-8.4	49	271	21.2	29	4,208	-11.4	44	282	19.0	30	4,208	-11.4	44	282	19.0	30	4,208	-11.4	44	282	19.0							
550----	30	4,986	-9.3	31	253	28.4	30	5,001	-9.7	37	267	30.7	30	4,858	-15.1	44	278	19.6	30	4,928	-12.4	41	274	25.5	29	4,870	-15.6	284	22.9	30	4,870	-15.6	284	22.9	30	4,870	-15.6	284	22.9	30	4,870	-15.6	284	22.9					
500----	30	5,724	-14.7	30	257	33.0	30	5,733	-14.7	30	269	35.4	30	5,578	-19.9	43	291	23.1	30	5,637	-17.2	39	268	28.2	29	5,584	-20.1	283	23.9	30	5,584	-20.1	283	23.9	30	5,584	-20.1	283	23.9	30	5,584	-20.1	283	23.9					
450----	30	6,508	-20.3	30	258	37.3	30	6,522	-20.0	30	267	40.0	30	6,343	-25.4	41	286	23.7	30	6,432	-22.8	39	269	29.7	29	6,350	-25.2	279	26.8	30	6,350	-25.2	279	26.8	30	6,350	-25.2	279	26.8	30	6,350	-25.2	279	26.8					
400----	30	7,377	-26.7	30	264	43.1	30	7,389	-26.1	30	266	47.2	30	7,197	-31.9	40	281	28.4	30	7,293	-19.1	39	262	30.1	29	7,202	-31.4	279	29.1	30	7,202	-31.4	279	29.1	30	7,202	-31.4	279	29.1	30	7,202	-31.4	279	29.1					
350----	30	8,327	-33.9	30	260	48.4	30	8,341	-33.1	30	266	52.8	30	8,126	-38.9	39	289	22.0	30	8,234	-36.4	39	254	29.0	29	8,133	-38.4	278	31.9	30	8,133	-38.4	278	31.9	30	8,133	-38.4	278	31.9	30	8,133	-38.4	278	31.9					
300----	30	9,391	-41.3	30	258	61.4	30	9,408	-40.9	30	269	59.5	30	9,167	-46.5	39	285	26.8	30	9,286	-44.1	39	260	29.0	29	9,176	-45.9	275	34.8	30	9,176	-45.9	275	34.8	30	9,176	-45.9	275	34.8	30	9,176	-45.9	275	34.8					
250----	30	10,608	-49.4	30	261	59.8	30	10,626	-49.1	30	270	70.7	30	10,358	-53.2	39	278	32.6	30	10,487	-51.9	39	261	35.6	29	10,371	-52.6	274	41.0	30	10,371	-52.6	274	41.0	30	10,371	-52.6	274	41.0	30	10,371	-52.6	274	41.0					
200----	30	12,046	-56.5	30	29	12,065	-56.3	30	273	80.8	30	11,777	-57.9	30	11,777	-57.9	30	11,913	-57.9	30	11,913	-57.9	30	11,913	-57.9	30	11,913	-57.9	277	44.7	30	11,913	-57.9	277	44.7	30	11,913	-57.9	277	44.7									
175----	30	12,886	-59.4	30	28	12,881	-59.0	30	272	77.3	30	12,619	-57.6	30	12,619	-57.6	30	12,754	-58.2	30	12,754	-58.2	30	12,754	-58.2	30	12,754	-58.2	277	43.7	30	12,754	-58.2	277	43.7	30	12,754	-58.2	277	43.7									
150----	30	13,847	-61.3	30	26	13,879	-60.2	30	271	68.6	30	13,598	-55.6	30	13,598	-55.6	30	13,720	-57.1	30	13,720	-57.1	30	13,720	-57.1	30	13,720	-57.1	276	40.8	30	13,720	-57.1	276	40.8	30	13,720	-57.1	276	40.8									
125----	30	15,975	-62.3	30	25	15,917	-62.4	30	271	68.6	30	13,598	-55.6	30	13,598	-55.6	30	13,720	-57.1	30	13,720	-57.1	30	13,720	-57.1	30	13,720	-57.1	276	40.8	30	13,720	-57.1	276	40.8	30	13,720	-57.1	276	40.8									
100----	30	23,163	-64.2	30	24	23,163	-65.2	30	269	44.1	30	16,178	-56.3	30	16,178	-56.3	30	16,309	-56.3	30	16,309	-56.3	30	16,309	-56.3	30	16,309	-56.3	275	33.4	30	16,309	-56.3	275	33.4	30	16,309	-56.3	275	33.4									
80----	30	12,170	-64.1	30	22	12,170	-63.7	30	271	30.5	30	17,596	-56.1	30	17,596	-56.1	30	17,727	-56.1	30	17,727	-56.1	30	17,727	-56.1	30	17,727	-56.1	273	30.9	30	17,727	-56.1	273	30.9	30	17,727	-56.1	273	30.9									
60----	30	19,498	-61.3	30	22	19,534	-59.3	30	275	10.3	30	19,433	-55.1	30	19,433	-55.1	30	19,564	-55.1	30	19,564	-55.1	30	19,564	-55.1	30	19,564	-55.1	275	27.4	30	19,564	-55.1	275	27.4	30	19,564	-55.1	275	27.4									
50----	30	20,640	-57.0	30	22	20,684	-56.8	30	330	1.6	30	20,600	-54.2	30	20,600	-54.2	30	20,731	-54.2	30	20,731	-54.2	30	20,731	-54.2	30	20,731	-54.2	275	22.7	30	20,731	-54.2	275	22.7	30	20,731	-54.2	275	22.7									
40----	30	22,062	-53.9	30	21	22,113	-53.1	30	95	5.1	30	22,035	-52.1	30	22,035	-52.1	30	22,166	-52.1	30	22,166	-52.1	30	22,166	-52.1	30	22,166	-52.1	283	12.6	30	22,166	-52.1	283	12.6	30	22,166	-52.1	283	12.6									
30----	30	23,991	-48.9	30	20	23,991	-48.9	30	96	7.4	30	23,889	-52.1	30	23,889	-52.1	30	24,020	-52.1	30	24,020	-52.1	30	24,020	-52.1	30	24,020	-52.1	298	9.7	30	24,020	-52.1	298	9.7	30	24,020	-52.1	298	9.7									
25----	30	25,991	-48.9	30	19	25,991	-48.9	30	96	7.4	30	25,889	-52.1	30	25,889	-52.1	30	26,020	-52.1	30	26,020	-52.1	30	26,020	-52.1	30	26,020	-52.1	298	9.7	30	26,020	-52.1	298	9.7	30	26,020	-52.1	298	9.7									
20----	30	27,991	-48.9	30	18	27,991	-48.9	30	96	7.4	30	27,889	-52.1	30	27,889	-52.1	30	28,020	-52.1	30	28,020	-52.1	30	28,020	-52.1	30	28,020	-52.1	298	9.7	30	28,020	-52.1	298	9.7	30	28,020												

RAWINSONDE DATA

Average monthly values

APRIL 1958

ST. CLOUD, MINN. (976 MB.)										ST. PAUL IS., ALASKA (1005 MB.)										SALEM, OREG. (1010 MB.)										SALT LAKE CITY, UTAH (870 MB.)										SAN ANTONIO, TEX. (984 MB.)																					
Standard pressure surface mb		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind																					
SURFACE		30		316		2.5		79		30		1.7		30		10		-0.1		90		151		6.0		30		61		6.1		91		194		3.9		30		1,288		4.4		68		162		2.5		30		243		15.4		81		40		2.7	
1,000----		30		118										30		46								167		1.7		30		557		6.5		73		215		7.2		30		558																			
950----		30		1,539		5.2		60		65		1.6		30		453		-1.9		85		67		1.7		30		1,005		3.7		73		215		9.7		30		1,002																					
900----		30		977		3.7		53		333		1.4		30		885		-1.9		79		66		1.0		30		1,467		8		72		225		11.1		30		1,476		5.9		50		175		1.7													
850----		30		1,438		1.3		54		286		6.0		30		1,335		-5.6		74		18		1.4		30		1,467		8		72		225		11.1		30		1,476		5.9		50		175		1.7													
800----		30		1,924		-1.3		54		296		5.8		30		1,809		-7.4		65		198		1.9		30		1,951		-2.0		65		239		11.9		30		1,970		2.9		50		264		3.5													
750----		30		2,436		-3.9		46		292		6.2		30		2,308		-9.6		56		187		1.4		30		2,458		-5.0		58		245		14.2		30		2,483		-1.0		53		280		7.2													
700----		30		2,979		-6.8		43		284		9.1		30		2,839		-12.5		51		137		1.7		30		3,001		-8.0		56		249		15.7		30		3,036		-5.3		58		278		9.5													
650----		30		3,548		-10.2		42		286		9.7		30		3,398		-15.8		50		160		2.3		30		3,569		-11.2		55		256		15.5		30		3,608		9.6		61																	
600----		30		4,165		-14.0		41		283		11.5		30		4,001		-19.5		48		108		2.1		30		4,184		-14.7		53		268		18.3		30		4,227		-13.6		56		275		15.0													
550----		30		4,816		-18.3		40		278		13.4		30		4,637		-23.5		44		204		2.9		30		4,833		-18.7		50		271		20.0		30		4,880		-17.7		45																	
500----		30		5,527		-23.4		40		282		13.2		30		5,332		-28.1		43		148		5.2		30		5,542		-23.5		47		273		23.9		30		5,591		-22.5		44																	
450----		30		6,284		-29.3		38		286		16.5		30		6,074		-33.2		43		123		10.5		30		6,297		-29.1		45		276		27.4		30		6,348		-28.2		43																	
400----		30		7,021		-35.8		39		277		17.1		30		6,899		-39.1				125		11.1		30		7,136		-35.5		41		281		30.3		30		7,191		-34.6		41																	
350----		30		8,136		-42.8				267		21.0		30		7,804		-44.9				125		10.1		30		8,053		-42.2				282		35.4		30		8,110		-41.7																			
300----		30		9,060		-50.0				268		21.0		30		8,821		-50.6				104		4.5		30		9,080		-49.0				285		43.5		30		9,140		-48.4																			
250----		30		10,233		-56.6				272		30.5		30		9,998		-53.9				12		6.6		30		10,259		-55.2				292		42.9		30		10,324		-54.2																			
200----		30		11,644		-57.0				273		30.1		29		11,411		-57.0				315		4.7		30		11,674		-57.8				293		35.9		30		11,743		-57.2																			
150----		30		13,479		-53.9				271		23.5		29		13,297		-49.5				303		2.7		30		13,493		-56.4				286		27.4		30		13,566		-56.2																			
125----		29		14,649		-53.9				267		24.2		29		14,492		-49.5				338		2.5		29		14,649		-56.3				287		24.5		28		14,733		-56.7																			
100----		28		16,084		-53.6				274		22.0		28		15,957		-50.2				276		3.5		29		16,066		-56.5				284		21.2		27		16,151		-57.2																			
75----		28		17,519		-53.7				266		19.8		28		17,413		-50.7				289		2.5		29		17,484		-55.8				275		16.7		27		17,563		-57.7																			
60----		25		19,376		-52.1				267		17.9		27		19,275		-51.5				299		4.1		28		19,311		-55.3				272		13.6		25		19,383		-56.3																			
45----		24		22,015		-50.4				270		14.6		29		22,045		-51.1				291		4.7		28		22,080		-51.4				274		10.4		24		22,153		-55.1																			
30----		23		23,896		-49.3				266		18.8		23		23,737		-52.4				314		6.0		24		23,758		-53.1				266		13.6		21		23,835		-51.8																			
15----		15		26,579		-49.0				257		17.1		19		26,345		-53.1				306		9.3		18		24,924		-52.0				261		15.7		19		25,015		-51.3																			
10----		10		28,489		-47.3								12		30,766		-52.8				310		14.4																																					

SAN DIEGO, CALIF. (999 MB.)										SAN JUAN, P. R. (1015 MB.)										SANTA MARIA, CALIF. (1007 MB.)										SANTA MONICA, CALIF. (1010 MB.)										SAULT STE. MARIE, MICH. (989 MB.)																											
SURFACE		30		124		11.6		91		151		1.4		30		6		25.0		85		110		3.3		30		74		13.5		84		282		1.4		30		138		14.2		72		43		2.9		30		221		0.7		76		48		2.5							
1,000----		30		115						59		1.2		30		134		24.4		81		98		8.4		30		129		11.1		79		344		3.5		30		122		15.0		67		52		2.9		30		134															
950----		30		549		13.3		65		206		3.1		30		585		21.6		80		90		11.3		30		557		12.2		62		32		8.2		30		553		14.0		58		26		3.9		30		551		3.3		55		30		6.3							
900----		30		1,002		12.1		48		275		3.9		30		1,052		18.8		79		94		9.1		30		1,011		12.5		47		30		9.5		30		1,011		12.5		47		347		4.3		30		987		1.8		51		266		2.0							
850----		30		1,480		10.2		39		289		7.0		30		1,541		15.8		77		100		8.4		30		1,486		8.5		46		355		9.1		30		1,488		9.7		45		303		4.1		30		1,446		-1.4		52		263		3.7							
800----		30		1,982		7.6		33		337		11.5		30		2,040		12.5		68		104		4.5		30		1,985		6.2		49		393		10.5		30		1,985		7.0		40		303		-2.1		51		249		6.0													
750----		30		2,486		5.0		29		397		11.0		30		2,595		10.6		62		97		3.7		30		2,511		3.5		39		317		13.0		30		2,516		4.2		33		283		9.9		30		2,437		-5.6		49		261		0.0							
700----		30		3,071		1.1		28		291		14.4		30		3,169		8.3		45		176		1.7		30		3,068		4		35		306		14.4		30		3,076		7		31		285		13.6		30		2,978		-8.0		47		277		9.5							
650----		30		3,657		-2.2				284		17.3		30		3,780		6.2		29		270		6		30		3,652		-3.3				305		18.1		30		3,662		-2.9		31		289		16.9		30		3,546		-11.2													
600----		30		4,296		-6.0				283		21.8		30		4,431		2.8				269		1.9		30		4,287		-7.5				301		20.2		30		4,297		-7.1		31		289		19.4		30		4,161		-14.7		41		271		16.7		47		272		20.0	
550----		30		4,959		-10.7				282		24.9		30		5,124		-1.3				266		7.2		30		4,952		-12.2				294		21.6		30		4,965		-11.7		285		22.5		30		4,810		-19.1		42		272		20.4		272		22.6		0.0			
500----		30		5,699		-15.9				278		27.4		30		5,884		-5.5				275		10.9		30		5,681		-17.2																																					

Average monthly values

APRIL 1958

[illegible]

computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of 98 dynamic meters; temperature in degrees Celsius; relative humidity in percent; and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

APRIL 1956

Date	Sun's zenith distance								
	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Apr. 1-----	0.92	1.01	1.14	1.26					
2-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
3-----	-----	-----	-----	-----	1.47	-----	-----	-----	-----
4-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
5-----	1.04	1.15	1.25	Dl. 37	Dl. 45	Dl. 17	Dl. 00	D0. 83	D0. 69
6-----	.82	.94	1.14	1.35	1.53	-----	-----	-----	-----
7-9-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
10-----	-----	-----	.99	1.22	-----	-----	-----	-----	-----
11-13-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
14-----	.74	.89	1.07	1.27	1.51	1.31	1.13	1.06	.95
15-----	.99	1.09	1.22	1.37	1.53	-----	-----	-----	-----
16-17-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
18-----	.96	1.05	1.18	1.32	1.50	-----	-----	-----	-----
19-----	-----	-----	-----	1.22	1.51	-----	-----	-----	-----
20-----	-----	1.02	1.16	1.33	-----	-----	-----	-----	-----
21-22-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
23-----	D. 57	D. 69	D. 73	Dl. 07	Dl. 40	Dl. 20	D. 96	D. 83	D. 69
24-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
25-----	.84	.95	1.10	1.26	1.47	-----	-----	-----	-----
26-----	.79	.90	1.01	1.21	1.47	-----	-----	-----	-----
27-----	.83	.95	1.09	1.28	-----	-----	-----	-----	-----
28-30-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
Aver- ages	.85	.97	1.09	1.27	1.48	1.23	1.03	.91	.78
BLUE HILL, MASS.									
	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Apr. 1-----	0.79	0.94	1.08	1.23	1.38	1.30	1.12	0.98	0.85
4-----	.83	.95	1.10	1.27	1.40	1.14	.97	.85	.70
5-----	-----	-----	-----	-----	-----	1.29	1.08	.94	.85
8-----	.85	.94	1.07	1.25	1.40	1.21	1.02	.88	.82
9-----	.88	.98	1.11	-----	1.42	1.18	-----	-----	-----
10-----	.84	.94	1.06	1.25	1.35	1.20	1.02	.87	.77
13-----	K. 63	K. 72	K. 93	-----	Kl. 30	K. 93	K. 72	K. 55	K. 40
15-----	H. 50	H. 63	H. 77	-----	-----	-----	-----	-----	-----
16-----	H. 50	H. 63	H. 77	-----	-----	-----	-----	-----	-----
17-----	H. 60	H. 70	H. 86	Hl. 07	Hl. 24	H. 96	H. 76	H. 62	H. 51
19-----	.89	1.01	1.19	1.32	1.38	-----	.87	.77	.66
26-----	.82	.94	1.05	1.22	1.45	1.28	1.07	.94	.84
Aver- ages	.76	.88	1.02	1.23	1.37	1.17	.96	.82	.71
WASHINGTON, D. C. (WBCO)									
	Air mass								
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
Apr. 1-----	M0. 46	M0. 60	0.78	-----	-----	-----	-----	-----	-----
2-----	.74	.85	.98	1.14	-----	-----	-----	0.80	0.68
3-----	.76	.88	.99	1.14	-----	1.06	.83	-----	-----
13-----	.67	.79	.94	1.14	-----	-----	-----	-----	-----
26-----	.73	.87	1.01	1.14	-----	-----	-----	-----	-----
30-----	-----	-----	-----	1.10	-----	-----	-----	-----	-----
Aver- ages	.67	.80	.94	1.13	-----	1.06	.83	.80	.68
OMAHA, NEBR.									
	Air mass								
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Apr. 7-----	S0. 87	S0. 97	S1. 09	S1. 26	S1. 43	-----	-----	-----	-----
11-----	-----	-----	.93	1.13	-----	Ml. 04	0.79	0.60	-----
12-----	.63	-----	-----	-----	-----	-----	-----	-----	-----
14-----	.67	.75	.88	1.06	-----	-----	-----	-----	-----
15-----	.57	.69	.84	1.03	1.22	-----	-----	-----	-----
16-----	-----	-----	-----	-----	1.26	S1. 06	S. 89	S. 73	S0. 62
22-----	.82	.90	1.03	-----	-----	-----	-----	-----	-----
29-----	.86	.96	1.08	1.26	1.40	-----	-----	-----	-----
Aver- ages	.74	.85	.98	1.15	1.33	1.05	.84	.67	.62

	Sun's zenith distance								
Date	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
TUCSON, ARIZ.									
	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Apr. 3-----	0.88	0.97	1.10	1.26	1.42	1.19	1.01	0.90	0.80
5-----	.83	.94	1.08	1.27	1.46	----	----	----	----
7-----	.94	1.05	1.15	1.33	1.49	----	----	----	----
9-----	.83	.91	1.04	1.20	1.40	1.13	.91	.77	.63
10-----	----	----	----	----	1.40	1.14	.92	.76	.62
11-----	.73	.84	.97	1.16	1.39	1.13	.90	.75	.64
12-----	.77	.86	1.05	1.24	1.42	----	----	----	----
14-----	.89	.99	1.14	1.27	1.41	1.22	1.02	.88	.76
15-----	.83	.94	1.05	1.22	----	----	----	----	----
17-----	.70	.80	.93	1.14	1.39	1.20	1.03	.91	.80
18-----	.88	.94	1.08	1.22	1.44	----	----	----	----
19-----	.91	1.00	1.11	1.24	1.38	----	----	----	----
21-----	----	----	----	----	1.48	1.30	1.13	1.01	.89
22-----	.97	1.04	1.16	1.26	1.46	1.28	1.11	1.03	.91
23-----	.83	.93	1.07	1.22	1.39	1.18	1.00	.89	.78
25-----	.83	.93	1.06	1.23	----	----	----	----	----
28-----	.88	1.00	1.10	1.23	1.42	1.22	1.07	.97	.85
29-----	.73	.87	1.00	1.17	1.38	1.20	1.03	.89	.76
30-----	.88	.92	1.05	1.20	1.42	1.44	1.05	.90	.75
Aver- ages	.84	.94	1.07	1.23	1.42	1.22	1.02	.89	.77
MAUNA LOA OBS., HAWAII									
	Air mass								
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Apr. 1-----	1.17	1.26	1.36	1.50	1.66	1.50	----	----	----
3-----	1.20	1.28	1.38	1.50	1.64	1.46	1.31	----	----
4-----	1.17	1.27	1.37	1.50	1.65	1.49	1.35	1.25	1.15
5-----	1.21	1.30	1.40	1.52	1.65	1.48	1.33	1.21	1.10
6-----	1.20	1.29	1.40	1.51	1.66	1.47	1.34	1.23	1.12
7-----	1.22	1.31	1.41	1.53	----	----	----	----	----
8-----	1.23	1.32	1.43	1.54	----	----	----	----	----
9-----	1.26	1.34	1.45	1.55	----	----	----	----	----
10-----	1.24	1.33	1.44	1.55	----	----	----	----	----
11-----	----	----	----	----	1.68	----	----	----	----
12-----	----	----	----	----	----	1.50	1.36	1.24	1.15
13-----	1.10	1.20	1.32	1.46	1.65	1.44	1.28	1.16	1.07
14-----	1.17	1.26	1.37	1.51	1.67	1.52	1.40	1.29	1.22
15-----	1.25	1.33	----	1.54	----	----	----	----	----
16-----	----	----	----	----	1.62	1.50	1.36	----	----
17-----	1.22	1.31	1.42	1.54	1.69	1.55	1.43	1.33	1.24
18-----	1.24	1.33	1.42	1.55	1.71	1.48	1.37	1.27	1.25
19-----	1.31	1.38	1.47	1.57	1.64	----	----	----	----
20-----	1.32	1.39	1.48	1.58	1.69	----	----	1.26	1.14
21-----	1.27	1.35	1.45	1.50	1.70	1.54	1.42	1.33	1.25
22-----	1.27	1.34	1.44	1.56	1.63	1.46	1.38	1.27	1.20
26-----	----	----	----	----	----	1.48	1.36	1.25	1.14
27-----	----	----	----	----	----	1.45	----	----	----
28-----	1.19	1.28	1.38	1.49	----	----	----	----	----
30-----	1.20	1.28	1.38	1.50	1.61	1.38	1.22	1.07	.93
Aver- ages	1.22	1.31	1.41	1.52	1.66	1.48	1.35	1.24	1.15
GUAM, M. I. (WBO)									
	Air mass								
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Apr. 12-----	----	----	M. 95	Ml. 12 cu+5	----	----	----	----	----
19-----	----	----	----	Ml. 1 cu22 1/2"	----	----	----	----	----

D Dust
H Haze
K Smoke
M Moderate haze - indeterminate
S Slight haze - indeterminate

* Values corresponding to true solar noon

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station

listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

APRIL 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg																						Avg																						Avg																					
Date-----	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Avg																																												
Langleys-----	35	41	456	428	39	19	305	189	420	413	45	83	407	253	385	287	338	368	309	366	171	330	22	273																																										
Date-----	23	24	25	26	27	28	29	30	1	2	3	4	5	6																																																				
Langleys-----	121	242	348	364	231	7	50	195	313	316	321	93	102	131	139	202																																																		

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

	Avg							Avg							Avg							Avg		
Date-----	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Langleys-----	81	88	100	88	79	55	135	89	78	83	65	143	83	199	96	107	209	118	213	78	237	197	69	160
Date-----	23	24	25	26	27	28	29	30	1	2	3	4	5	6										
Langleys-----	176	225	171	126	333	37	113	169	197	101	123	191	190	205	247	179								

Note: Langley is the unit used to denote one gram calorie per square centimeter

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

APRIL 1958

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	77	*67	*91	*-7	*111	*81	213	279	245	*-11	142	234	297	283	*36	141	318	299	247	254	228	*162	334	265	*317	*232	*133	*146	250	*236		190

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

APRIL 1958

	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Ore.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N. C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	ELY, Nev.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.
1958																														
Apr. 2-----	---	490	633	176	576	333	435	339	93	469	122	191	575	726	243	592	390	446	178	83	182	341	651	660	359	405	230	665	479	204
Apr. 3-----	679	392	499	396	316	331	365	211	109	125	143	478	629	455	506	458	521	136	401	305	437	552	679	239	356	(660)	278	207	523	211
Apr. 4-----	687	215	523	283	99	376	464	70	607	410	586	615	630	512	583	95	476	514	422	400	533	509	671	521	381	---	374	349	128	313
Apr. 5-----	---	464	132	263	83	369	316	47	601	555	570	527	633	542	582	406	468	614	422	253	274	211	698	(692)	386	---	374	326	230	457
Apr. 6-----	706	495	476	393	629	319	334	600	101	395	113	623	(558)	93	546	140	---	30	253	358	473	232	652	335	384	648	275	169	478	430
Apr. 7-----	502	341	706	288	250	379	381	556	71	232	68	576	583	704	190	648	122	604	319	637	589	586	677	158	399	663	308	703	448	412
Apr. 8-----	---	343	708	289	682	373	406	414	496	527	473	430	(637)	763	227	670	500	462	244	610	79	551	518	391	404	387	570	703	236	158
Average-----	658	391	525	327	376	354	386	320	297	388	297	492	(608)	514	411	430	413	365	333	378	367	426	650	(428)	381	(555)	344	446	360	312
Apr. 9-----	452	130	---	161	131	358	488	580	625	595	618	568	518	687	501	409	602	148	185	614	180	638	674	592	408	559	551	75	395	251
Apr. 10-----	705	110	689	461	317	378	499	468	617	354	571	619	645	142	446	154	---	499	489	609	200	262	704	493	330	382	497	229	290	554
Apr. 11-----	572	220	389	554	569	253	520	231	69	611	35	337	213	371	483	551	---	612	579	621	545	93	687	505	364	638	560	668	461	395
Apr. 12-----	432	294	667	559	690	267	444	392	160	619	138	424	337	601	160	653	---	570	601	621	290	465	678	696	418	420	575	643	617	338
Apr. 13-----	433	356	546	158	666	272	366	584	633	591	640	609	400	752	409	656	---	429	192	589	245	590	613	715	433	580	546	592	625	578
Apr. 14-----	726	58	346	185	377	420	484	611	412	551	380	245	90	738	625	598	---	108	414	603	679	622	723	684	424	358	585	324	453	586
Apr. 15-----	721	119	630	116	79	348	551	515	604	435	605	595	620	---	618	65	610	329	118	632	677	604	641	707	415	674	587	430	465	587
Average-----	577	157	546	313	411	328	479	483	446	536	427	485	403	549	463	441	---	385	365	613	402	467	674	627	399	444	557	423	472	470
Apr. 16-----	126	429	446	327	386	446	574	442	550	468	538	489	(536)	68	559	123	616	625	263	607	655	582	400	697	392	667	594	207	411	586
Apr. 17-----	356	252	701	427	665	408	485	595	608	124	584	328	587	708	361	579	606	574	309	421	170	605	599	600	418	198	590	522	609	590
Apr. 18-----	667	370	636	153	650	436	574	355	512	629	477	415	487	800	544	644	596	414	252	613	266	607	710	675	444	228	411	635	585	520
Apr. 19-----	708	298	657	81	488	443	238	487	659	365	627	457	613	688	642	---	546	360	145	557	450	432	703	621	482	459	583	678	612	491
Apr. 20-----	723	505	695	265	609	317	440	319	327	434	253	551	535	742	196	630	242	416	173	629	667	204	706	684	366	529	(581)	747	372	579
Apr. 21-----	737	614	303	202	438	447	231	607	556	393	517	571	638	455	337	559	352	132	239	660	566	506	723	720	430	318	609	356	377	570
Apr. 22-----	679	596	569	483	501	460	136	555	91	359	72	517	608	343	46	371	488	681	476	700	663	271	713	550	330	475	646	600	463	519
Average-----	571	438	572	277	534	422	382	480	472	396	438	475	(573)	543	384	484	492	425	265	598	491	458	650	650	409	410	(573)	535	490	551
Apr. 23-----	743	496	334	532	624	388	184	215	243	186	230	---	649	762	127	696	358	423	321	702	610	227	698	588	239	496	654	735	231	424
Apr. 24-----	654	629	669	466	521	265	168	665	412	384	468	---	648	702	370	651	570	363	352	696	666	254	714	571	252	204	627	695	371	531
Apr. 25-----	705	603	651	391	328	246	555	548	635	578	584	---	(557)	695	400	586	602	605	456	681	530	682	715	675	338	216	637	678	514	609
Apr. 26-----	767	627	683	468	448	331	561	249	706	298	646	---	(503)	296	277	462	646	340	507	670	197	647	751	757	475	53	627	570	321	567
Apr. 27-----	698	635	535	533	189	305	474	144	430	666	---	---	626	---	612	307	145	202	685	526	404	390	746	645	---	146	546	530	598	615
Apr. 28-----	413	618	597	555	271	541	567	601	46	693	43	---	474	654	305	511	222	298	694	526	486	162	750	481	507	191	618	540	752	381
Apr. 29-----	632	621	616	598	324	512	514	634	136	693	122	---	572	642	69	379	452	699	689	656	394	699	---	486	467	80	555	515	462	639
Average-----	659	604	584	506	387	370	435	437	372	500	349	---	(590)	625	309	513	428	419	529	641	470	437	729	600	380	198	609	609	464	538
Apr. 30-----	669	655	674	583	395	544	400	596	587	686	591	---	581	---	656	383	701	502	675	695	633	700	683	759	274	20	610	510	538	571
May 1-----	645	564	644	276	354	499	604	355	690	656	662	---	519	284	693	444	686	611	701	685	632	659	535	673	381	168	617	630	537	441
May 2-----	426	537	680	417	430	556	314	653	666	699	655	---	461	675	707	583	526	298	698	677	687	321	623	739	504	56	631	687	344	615
May 3-----	658	137	634	438	453	431	664	691	221	664	222	---	332	680	580	628	207	198	571	521	677	744	652	204	328	---	658	646	672	424
May 4-----	759	140	445	476	533	550	637	255	227	667	185	---	612	773	172	684	380	206	614	690	741	321	745	641	384	521	601	622	621	635
May 5-----	771	290	260	407	439	364	---	687	280	530	296	---	613	676	731	569	580	530	233	705	727	633	752	715	478	629	605	637	720	667
May 6-----	---	238	581	157	148	341	543	588	305	410	338	---	580	224	712	532	149	735	437	696	696	655	741	---	448	617	627	610	381	452
Average-----	655	366	560	393	393	469	527	546	425	616	421	---	528	552	607	546	450	437	551	691	554	554	691	697	382	334	615	622	541	579

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

APRIL 1958

	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif. (urban)	Los Angeles, Calif.	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Phoenix, Ariz.	Portland, Me.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	San Antonio, Tex.	
1958																															
Apr. 2-----	256	530	535	392	743	533	324	484	289	659	305	491	357	429	398	---	646	599	509	97	264	402	(522)	380	687	111	543	559	202	151	
Apr. 3-----	228	529	306	394	583	566	519	437	419	241	68	426	495	627	456	---	341	651	210	125	469	41	376	681	368	229	554	544	352	651	
Apr. 4-----	83	90	159	357	755	603	532	88	146	---	182	599	513	627	456	---	606	607	444	607	534	126	234	586	525	383	152	80	429	628	
Apr. 5-----	115	149	107	288	149	569	469	602	149	675	135	506	481	569	466	---	562	607	237	588	548	145	---	500	721	622	190	178	616	703	
Apr. 6-----	367	489	567	168	149	125	598	594	595	324	90	621	211	205	---	---	344	452	634	546	85	27	103	521	649	196	349	596	229	707	
Apr. 7-----	373	481	372	376	644	47	651	453	463	249	631	583	345	387	---	---	535	344	650	123	111	(628)	98	700	444	88	488	557	383	669	
Apr. 8-----	327	626	626	596	762	226	318	159	229	689	412	388	631	621	160	288	650	555	626	498	418	477	638	330	---	200	638	281	682	395	
Average-----	250	414	382	367	620	381	487	402	327	473	259	516	433	476	381	---	515	622	385	302	339	(274)	(398)	564	614	290	412	399	413	558	
Apr. 9-----	507	496	141	425	737	628	297	561	242	674	136	351	609	595	470	518	410	638	257	627	677	217	404	175	735	600	536	376	669	707	
Apr. 10-----	519	52	360	94	740	483	646	399	470	482	463	222	617	609	452	542	463	630	94	590	459	379	202	153	738	620	62	458	657	704	
Apr. 11-----	469	251	527	199	761	114	648	399	470	482	637	371	630	625	219	366	365	524	253	62	21	611	87	651	754	62	267	404	692	692	
Apr. 12-----	604	493	628	511	778	42	399	660	598	696	641	646	657	650	496	598	619	68	659	176	214	498	591	269	678	272	489	611	718	356	
Apr. 13-----	623	634	660	469	750	607	373	689	667	710	673	191	646	607	505	405	513	102	428	632	681	537	595	118	686	647	643	679	696	306	
Apr. 14-----	437	579	421	422	757	513	101	506	633	578	620	69	615	618	417	377	328	693	159	467	533	514	328	507	707	304	580	648	637	565	
Apr. 15-----	303	159	87	---	791	620	662	563	628	704	629	382	645	636	524	331	361	613	141	606	573	595	170	710	702	649	175	595	674	596	
Average-----	494	381	404	353	759	430	447	578	513	645	514	319	631	620	440	508	437	467	284	452	451	507	340	369	714	450	393	539	678	561	
Apr. 16-----	506	256	299	530	778	570	627	552	640	699	632	627	647	612	434	---	562	577	649	561	327	603	574	728	416	600	304	633	674	477	
Apr. 17-----	287	653	633	583	769	586	452	658	609	697	488	597	560	621	448	262	534	552	648	631	607	(486)	637	381	700	600	644	650	529	177	
Apr. 18-----	586	602	583	586	737	523	303	665	501	580	433	260	547	269	286	410	609	652	475	502	577	520	594	485	702	513	632	426	403	25	
Apr. 19-----	444	503	491	528	773	646	274	688	397	705	342	358	646	643	556	324	608	671	316	653	648	512	386	588	702	691	516	409	687	590	
Apr. 20-----	391	555	450	244	783	201	298	734	663	693	619	66	847	663	454	348	521	647	411	381	462	564	433	752	707	388	548	295	688	521	
Apr. 21-----	326	405	396	445	805	94	650	718	575	728	267	457	646	670	605	255	370	649	578	501	582	286	329	534	725	431	692	446	696	592	
Apr. 22-----	247	228	577	190	834	307	389	655	479	726	355	656	599	648	207	442	515	617	499	126	268	375	154	---	738	81	351	70	664	631	
Average-----	398	458	490	444	783	418	428	667	552	690	451	432	613	575	427	340	531	609	511	479	496	(478)	444	578	670	472	527	418	620	421	
Apr. 23-----	296	642	670	147	808	270	528	439	384	750	58	150	678	718	177	544	653	641	671	371	191	191	49	665	548	196	662	346	718	524	
Apr. 24-----	(487)	503	576	457	827	461	415	652	502	723	494	212	647	610	397	599	678	701	405	520	475	489	263	716	716	488	492	712	721	211	
Apr. 25-----	565	399	375	602	833	532	412	554	370	729	519	210	665	678	---	---	688	599	136	591	612	450	489	559	765	655	516	344	696	133	
Apr. 26-----	109	374	467	289	822	558	515	660	603	729	433	36	668	648	---	---	635	642	425	120	691	737	267	108	468	771	643	421	435	689	159
Apr. 27-----	486	68	313	71	794	163	420	606	436	670	250	216	632	658	---	(642)	561	513	508	---	393	181	263	208	474	778	525	229	325	696	267
Apr. 28-----	341	208	359	322	810	145	422	300	318	685	563	333	514	541	---	(642)	627	687	---	51	39	464	327	145	781	44	255	706	542	249	
Apr. 29-----	625	282	278	676	684	86	471	758	584	619	695	225	263	512	518	638	644	110	---	125	293	703	210	621	766	86	398	736	409	71	
Average-----	(416)	354	434	366	796	317	455	567	457	701	430	198	581	623	---	(603)	635	524	333	392	361	384	281	504	760	377	425	515	639	231	
Apr. 30-----	(535)	342	526	---	---	718	476	729	739	529	598	88	239	426	115	652	673	263	---	623	631	604	484	494	793	634	378	646	342	256	
May 1-----	612	94	457	645	782	706	496	607	572	686	520	158	276	402	485	654	728	161	---	621	456	528	124	281	791	642	226	643	278	162	
May 2-----	667	119	520	165	835	730	463	734	655	684	367	127	218	418	158	658	537	380	---	535	576	409	401	226	735	713	166	667	257	90	
May 3-----	635	604	552	210	832	38	454	661	684	714	102	239	(639)	605	178	637	520	691	---	249	82	164	495	649	768	204	396	692	656	609	
May 4-----	704	595	565	233	834	194	321	683	578	719	470	268	(702)	691	181	804	561	725	---	221	82	465	367	290	778	175	631	713	714	662	
May 5-----	599	467	467	457	74	827	377	511	727	695	677	662	220	556	617	---	601	190	696	---	109	91	671	579	742	755	447	520	747	711	734
May 6-----	160	96	---	91	799	127	713	476	469	601	703	651	644	636	419	681	545	690	---	193	61	659	72	611	772	580	150	686	695	728	
Average-----	(559)	331	513	236	818	413	491	659	628	659	489	250	(482)	542	256	641	536	515	---	365	282	500	360	470	770	485	352	685	522	463	

Note. ---Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

APRIL 1958

	Santa Maria, Calif.	S. Ste. Marie, Mich.	Saville, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island	(Silver Hill Obs.)	Dartmouth, N. S.	Edmonton, Alberta	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Resolute, N. W. T.	Toronto, Ontario	Winnipeg, Manitoba
1958																				
Apr. 2-----	---	642	347	165	241	375	241	568	608	464	694	566	(64)	308	493	480	512	220	518	340
Apr. 3-----	523	582	285	406	448	618	234	587	153	681	646	594	144	(166)	478	500	539	254	531	235
Apr. 4-----	687	645	669	478	523	636	307	591	517	530	584	(473)	503	56	212	515	538	270	554	453
Apr. 5-----	521	557	633	471	541	634	461	332	355	697	684	237	553	220	526	525	547	291	472	510
Apr. 6-----	(538)	69	29	28	530	672	513	231	312	680	682	132	553	230	533	499	69	307	64	542
Apr. 7-----	(593)	504	136	90	498	681	540	73	644	(706)	360		100	250	383	329	143	320	243	522
Apr. 8-----	728	363	570	345	275	343	469	376	658	358	582	373	244	374	510	280	533	294	318	522
Average-----	(598)	480	381	283	437	566	395	394	464	580	(649)	(391)	(310)	(229)	448	447	412	279	386	446
Apr. 9-----	697	563	691	482	384	(391)	454	648	81	707	694	646	342	380	317	(393)	563	341	568	525
Apr. 10-----	697	635	594	450	310	230	214	429	115	698	685	253	258	164	495	450	556	333	443	403
Apr. 11-----	709	633	38	70	574	488	424	242	618	698	615	61	441	478	540	509	374	306	74	203
Apr. 12-----	732	646	334	122	560	582	592	135	624	708	682	178	74	473	522	441	306	358	517	558
Apr. 13-----	664	571	696	492	261	298	435	603	462	614	702	630	127	393	383	547	574	(374)	547	503
Apr. 14-----	742	670	637	289	224	188	388	451	309	719	679	617	592	456	491	500	409	374	571	562
Apr. 15-----	718	681	653	471	187	705	213	616	380	551	670	589	582	(381)	504	482	565	312	547	516
Average-----	709	629	520	339	357	(412)	389	389	370	671	675	425	345	(389)	465	(475)	478	(343)	467	467
Apr. 16-----	733	708	391	438	505	670	531	570	275	504	731	355	596	321	455	200	482	373	524	244
Apr. 17-----	729	440	723	431	382	616	148	595	656	702	---	641	194	501	447	(248)	469	417	543	159
Apr. 18-----	727	738	706	414	316	212	433	544	602	---	687	585	515	484	206	571	611	422	560	552
Apr. 19-----	754	198	716	517	104	307	174	536	643	---	679	605	557	435	406	90	206	354	287	(576)
Apr. 20-----	738	192	543	222	322	280	320	417	632	704	715	522	103	489	347	161	280	439	435	256
Apr. 21-----	770	554	598	531	313	591	509	213	437	726	649	506	159	437	413	260	73	435	367	170
Apr. 22-----	784	116	134	308	345	695	349	508	362	729	(600)	411	387	423	359	(270)	376	406	459	(346)
Average-----	748	421	544	409	327	481	352	483	515	673	(677)	518	185	298	94	127	396	429	559	614
Apr. 23-----	697	500	191	286	335	343	479	531	654	728	629	580	185	298	94	127	396	429	559	614
Apr. 24-----	657	117	633	390	488	390	448	426	608	603	666	259	185	423	155	171	335	346	482	334
Apr. 25-----	641	316	625	502	486	89	297	568	654	742	646	455	235	429	177	175	245	451	445	635
Apr. 26-----	635	678	764	535	414	116	318	648	667	---	---	(588)	570	514	583	277	605	484	670	(517)
Apr. 27-----	648	719	244	445	670	187	563	21	594	---	66	66	330	390	590	615	645	506	435	364
Apr. 28-----	624	127	38	63	637	452	547	318	663	---	689	243	341	400	410	546	108	517	184	192
Apr. 29-----	583	346	155	160	670	111	684	168	669	739	477	411	67	443	312	47	96	469	331	405
Average-----	640	429	378	340	528	241	476	386	644	703	636	(372)	273	407	332	280	347	457	444	(437)
Apr. 30-----	601	252	716	555	614	54	637	573	550	753	723	626	94	257	421	554	672	502	650	361
May 1-----	336	596	501	535	488	144	683	672	626	662	754	158	657	395	277	329	557	330	403	685
May 2-----	427	657	619	555	508	364	676	515	639	720	705	---	576	326	569	583	692	383	681	408
May 3-----	594	231	138	92	584	91	624	142	465	728	741	117	662	367	67	208	52	425	143	---
May 4-----	659	794	99	174	598	473	644	69	626	739	755	448	449	523	598	(430)	696	471	470	---
May 5-----	683	785	68	338	301	269	481	196	516	699	(722)	62	82	539	529	(523)	668	549	524	620
May 6-----	---	792	101	199	625	754	315	30	590	723	587	---	627	603	647	649	598	428	340	588
Average-----	517	587	320	350	531	307	580	309	573	718	(712)	282	450	430	444	(468)	562	441	459	532

Note.---Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, April 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), April 1958.

A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), April 1958.



Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), April 1958.



B. Percentage of Normal Precipitation, April 1958.



Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), April 1958.



This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, April 1958.

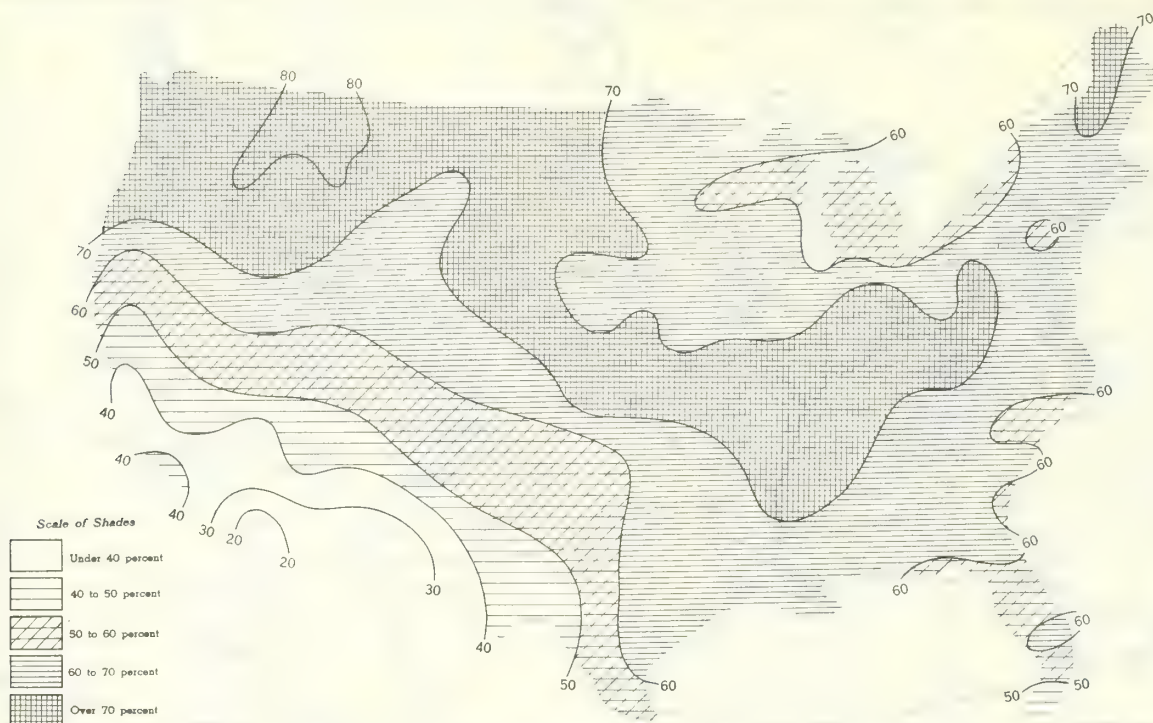


B. Depth of Snow on Ground (Inches)

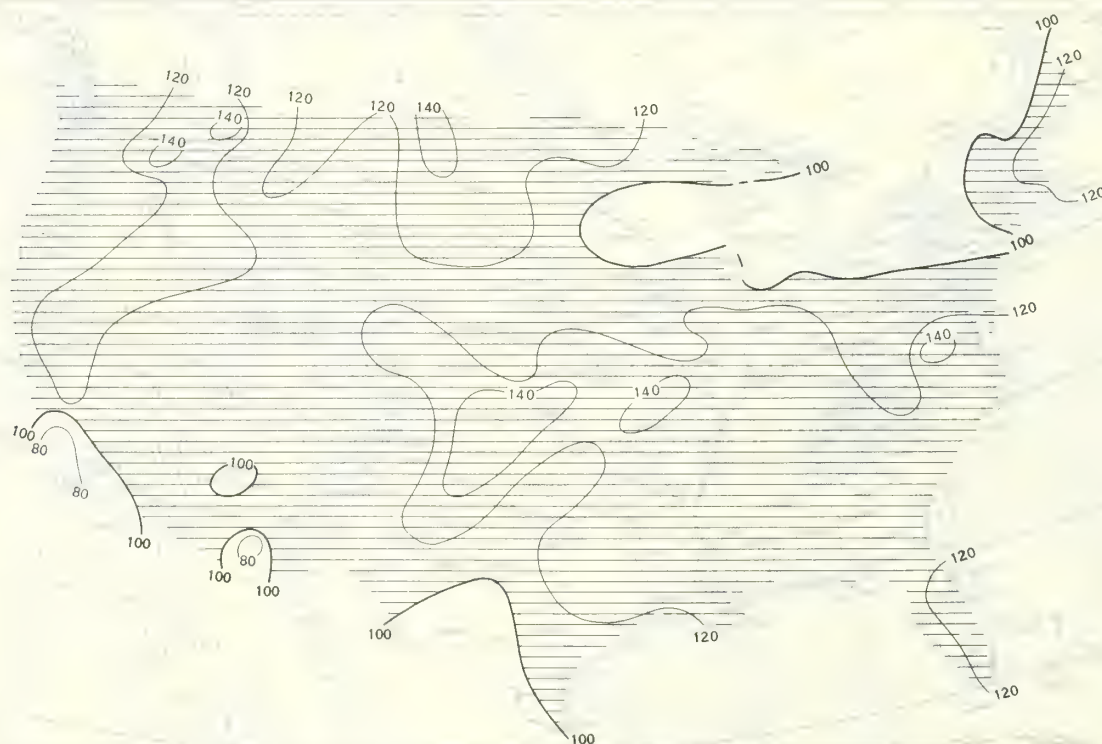
DISCONTINUED UNTIL NOVEMBER

A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
 B. Shows depth currently on ground at 7:00 a. m. E.S.T., of the Monday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, April 1958.

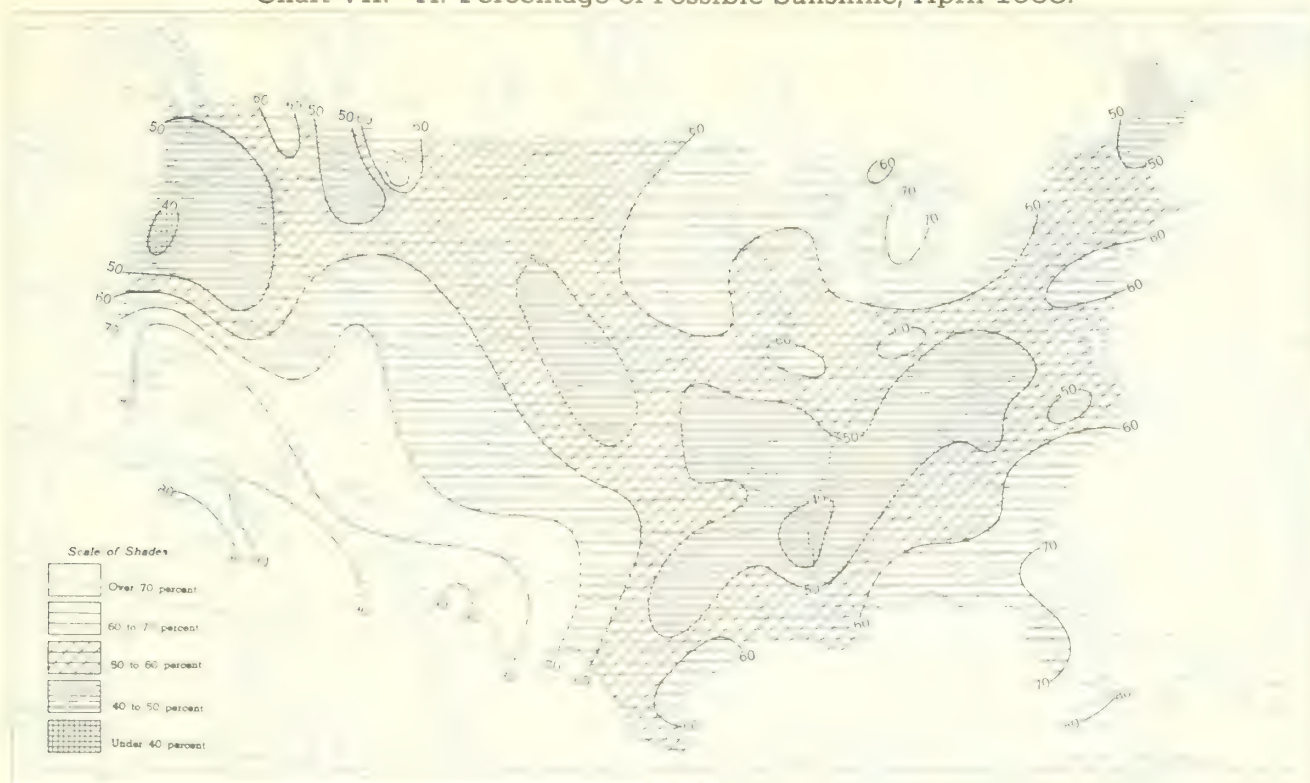


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, April 1958.

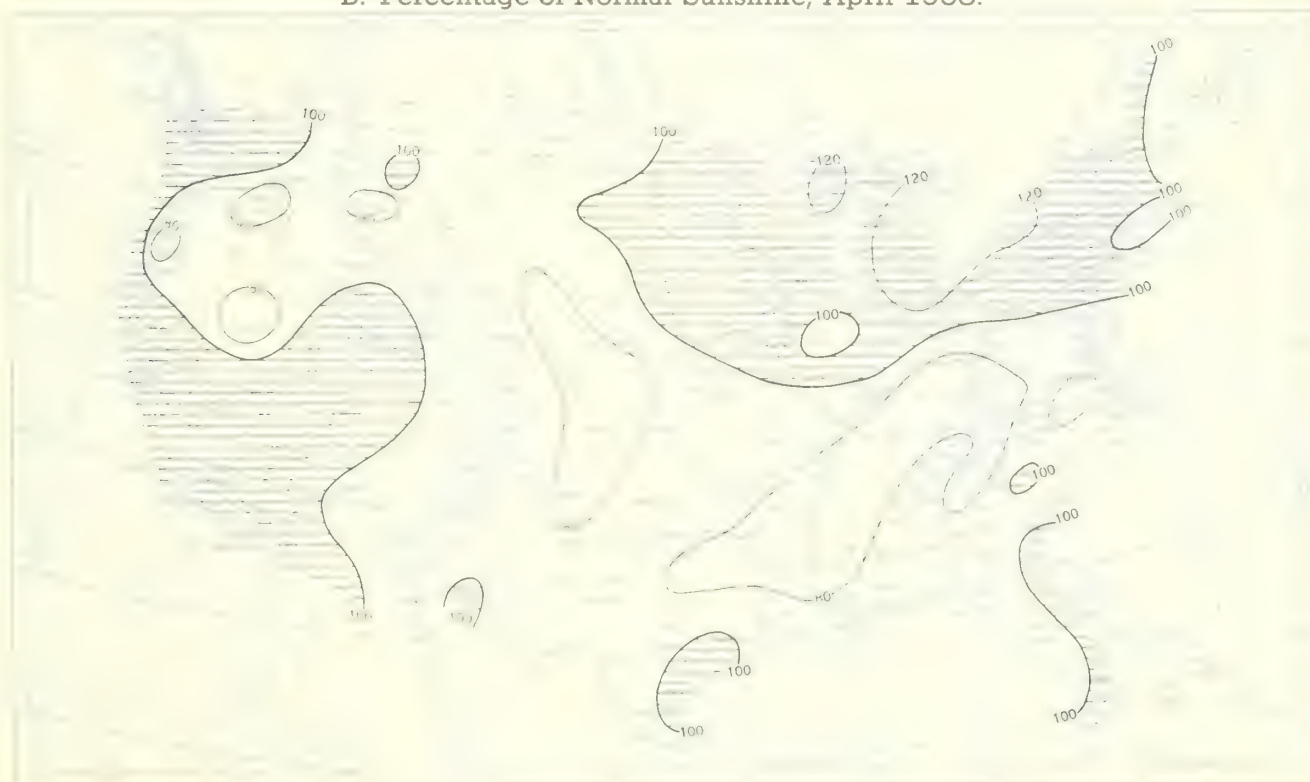


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, April 1958.



B. Percentage of Normal Sunshine, April 1958.



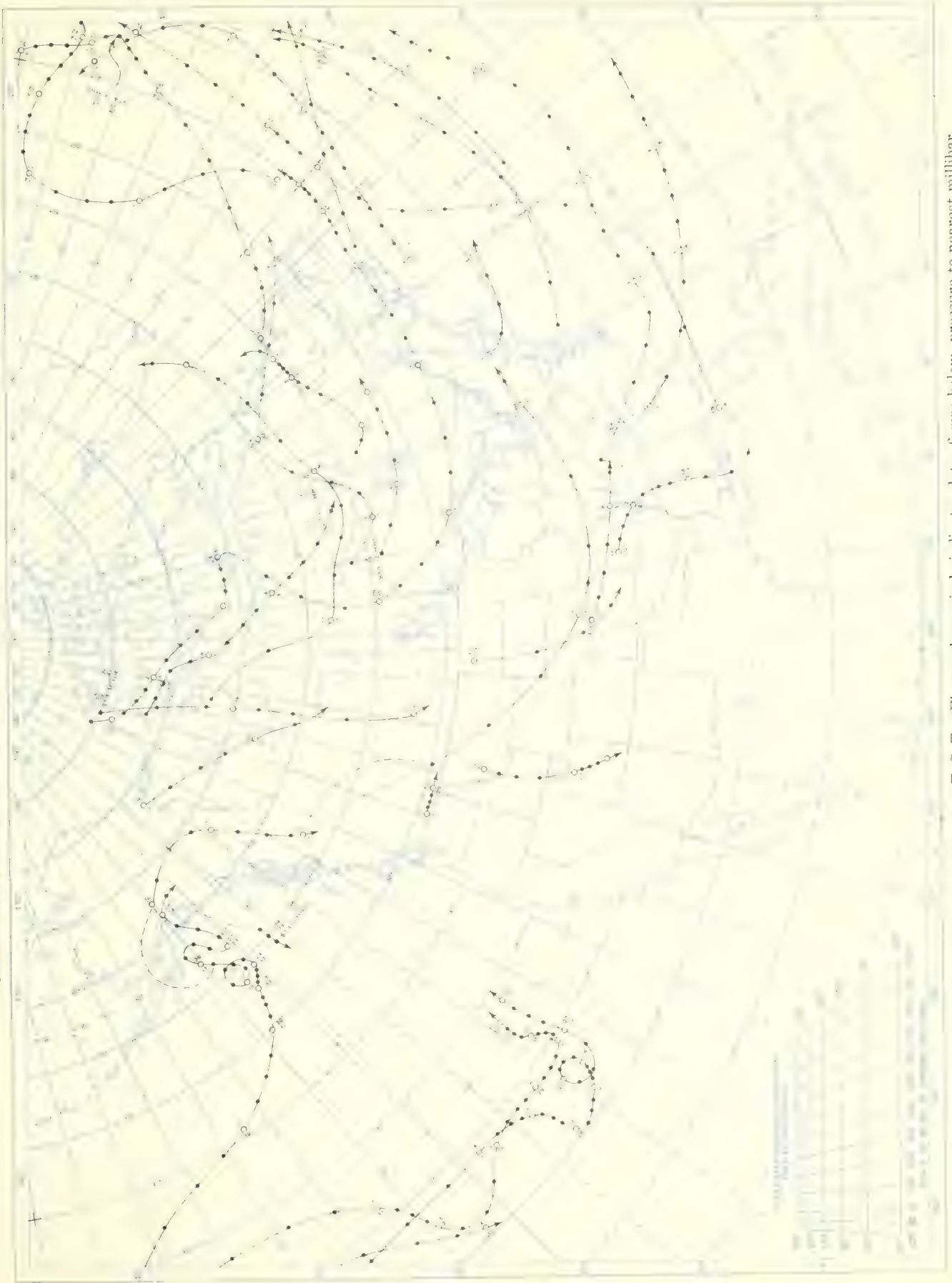
A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, April 1958. Inset: Percentage of Mean Daily Solar Radiation, April 1958. (Mean based on period 1951-55.)



Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. ⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. The inset shows the percentage of the mean based on the period 1951-55.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, April 1958.



Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar.
 Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, April 1958.

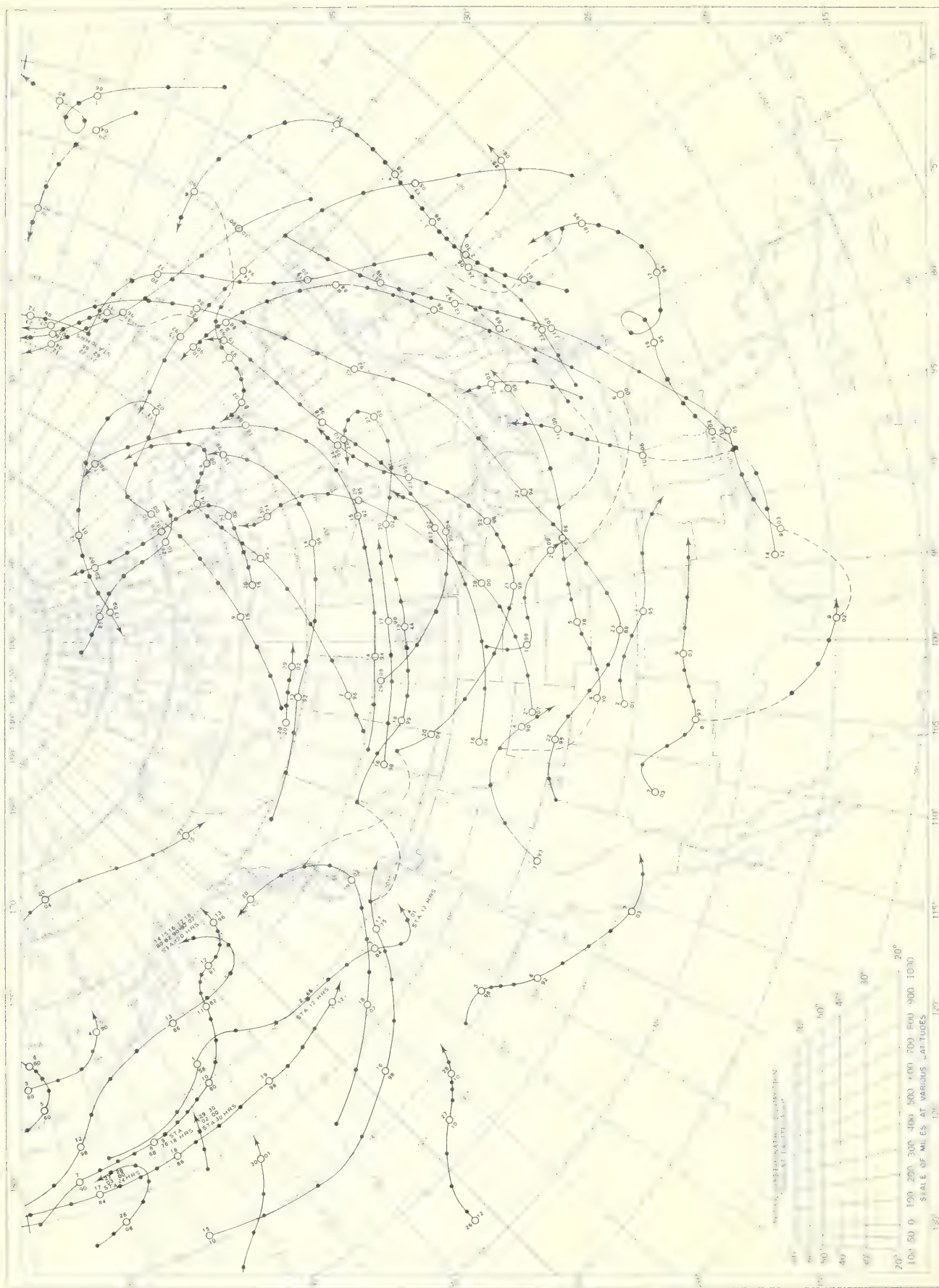
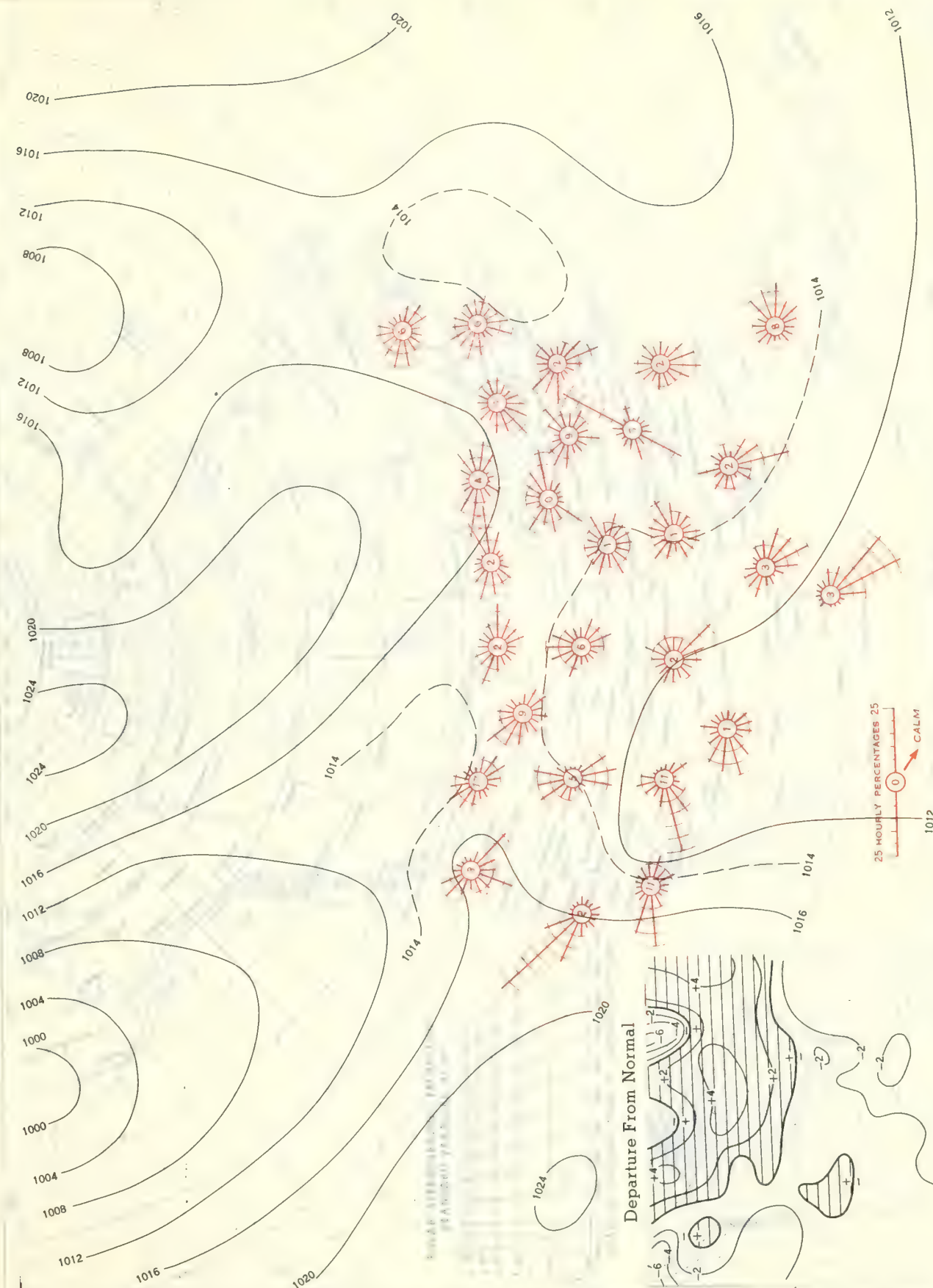


Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, April 1958. Inset: Departure of Average Pressure (mb.) from Normal, April 1958.



Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, April 1958. Average Height and Temperature and Resultant Winds.

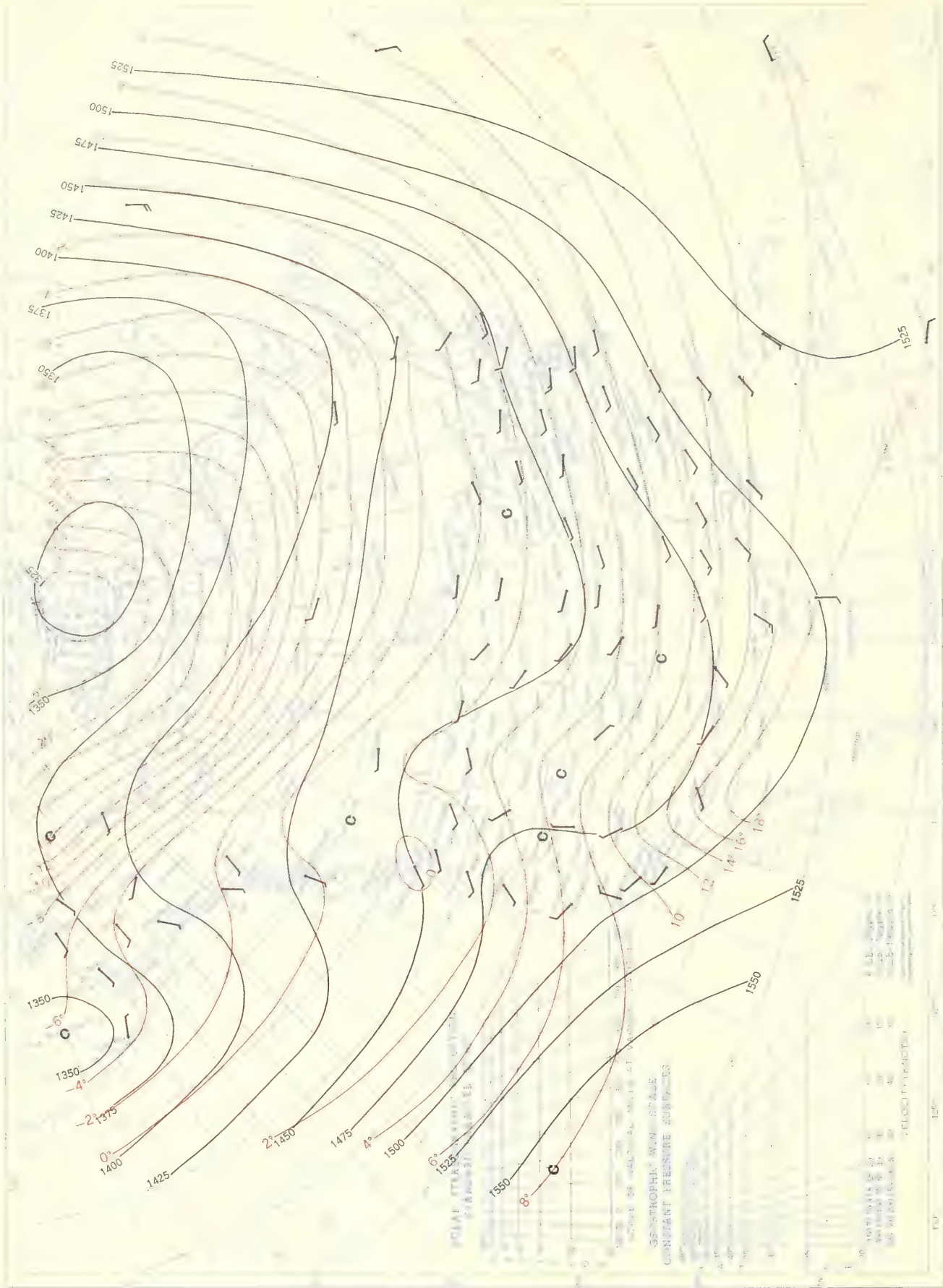
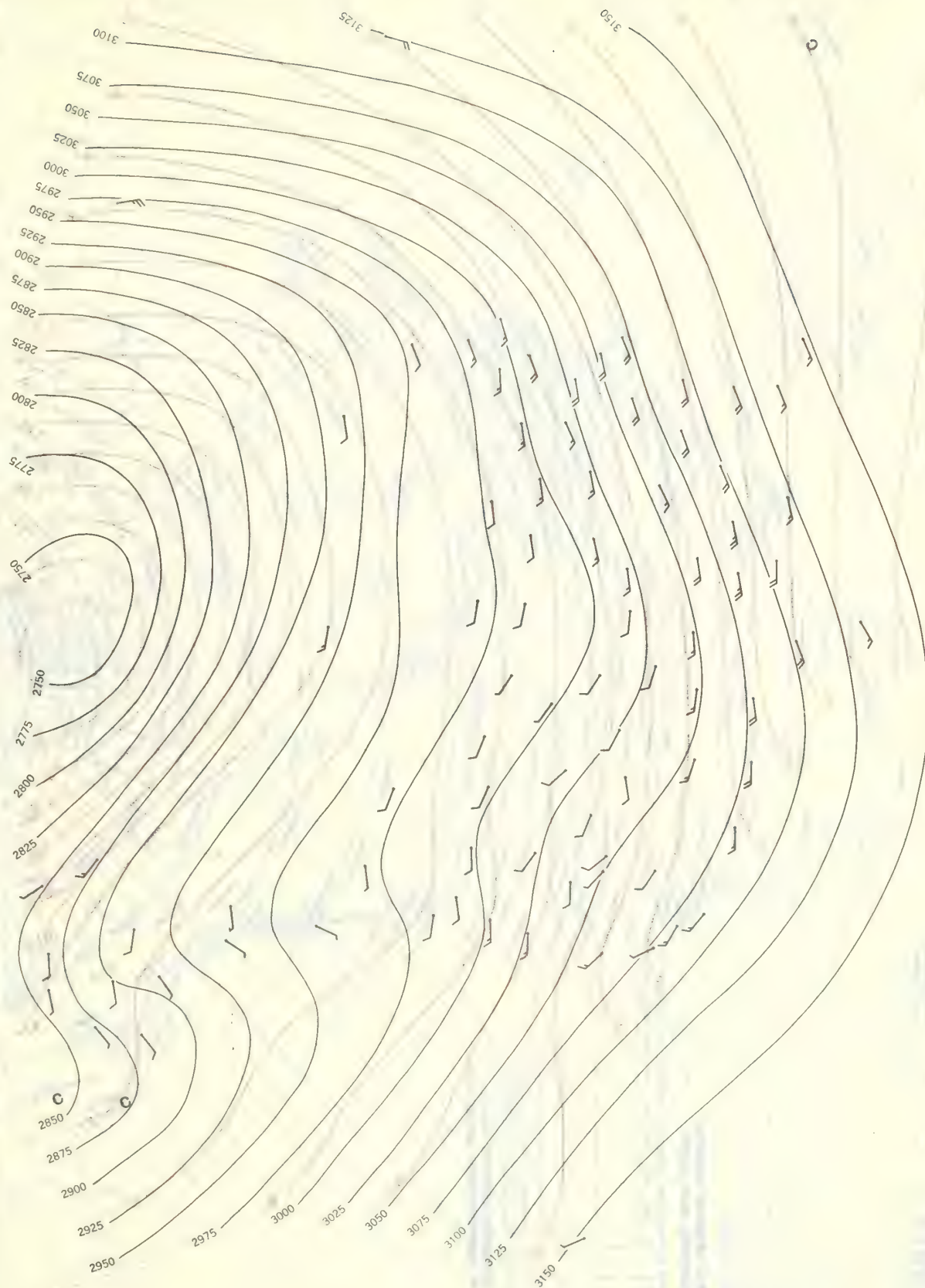
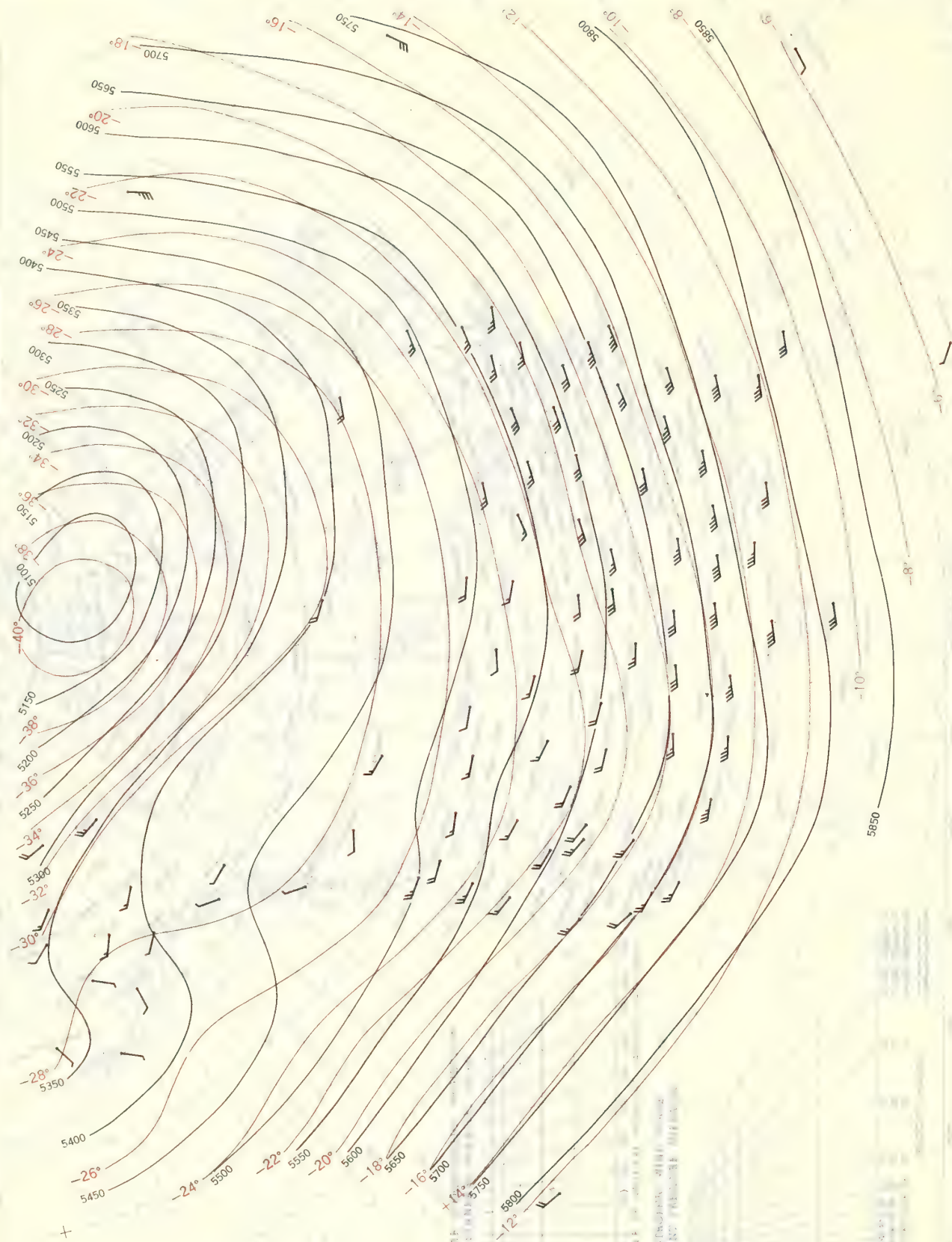


Chart XIII. 700-mb. Surface, 1200 GMT, April 1958. Average Height and Temperature, and Resultant Winds.



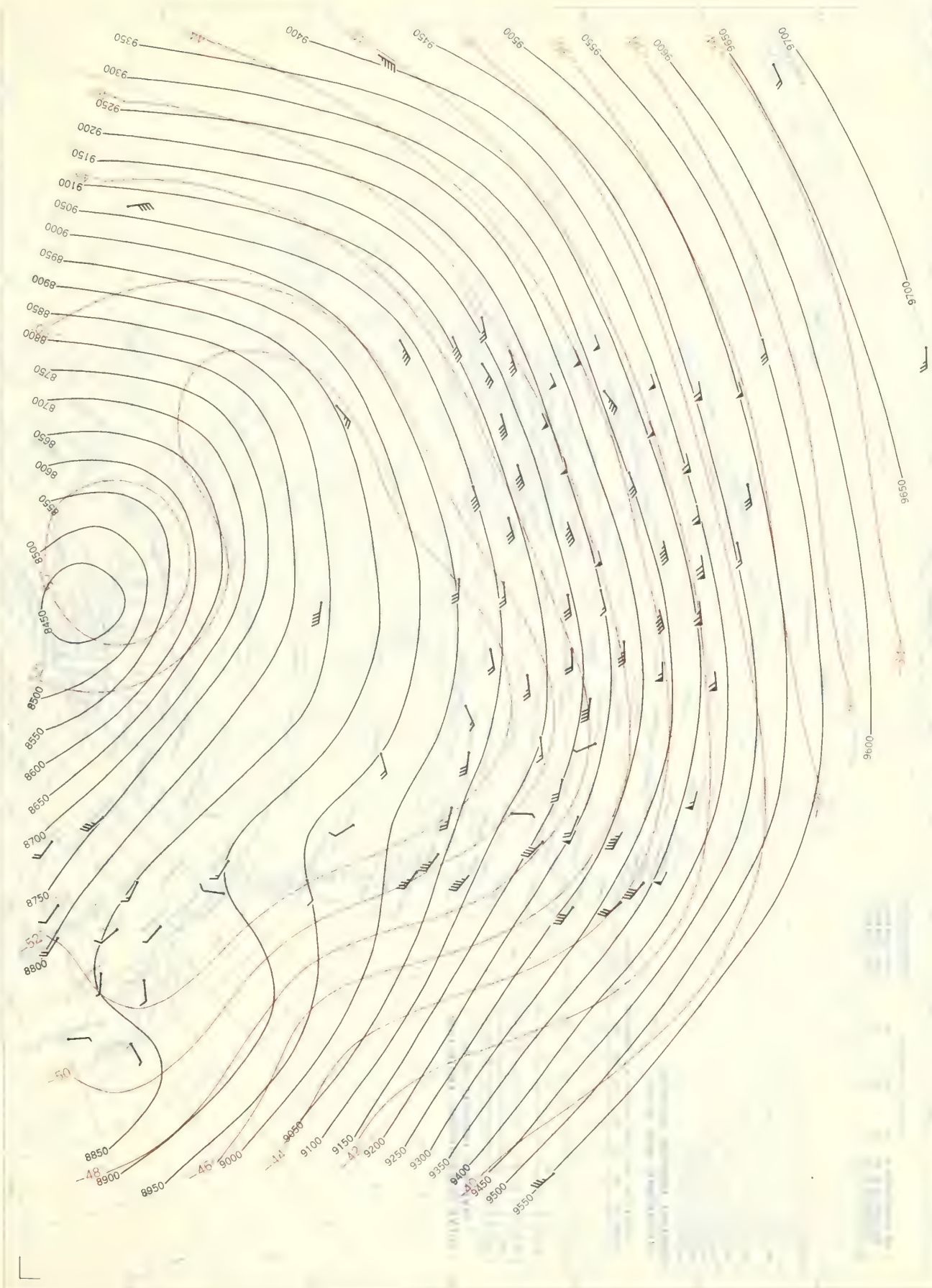
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, April 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, April 1958. Average Height and Temperature, and Resultant Winds.



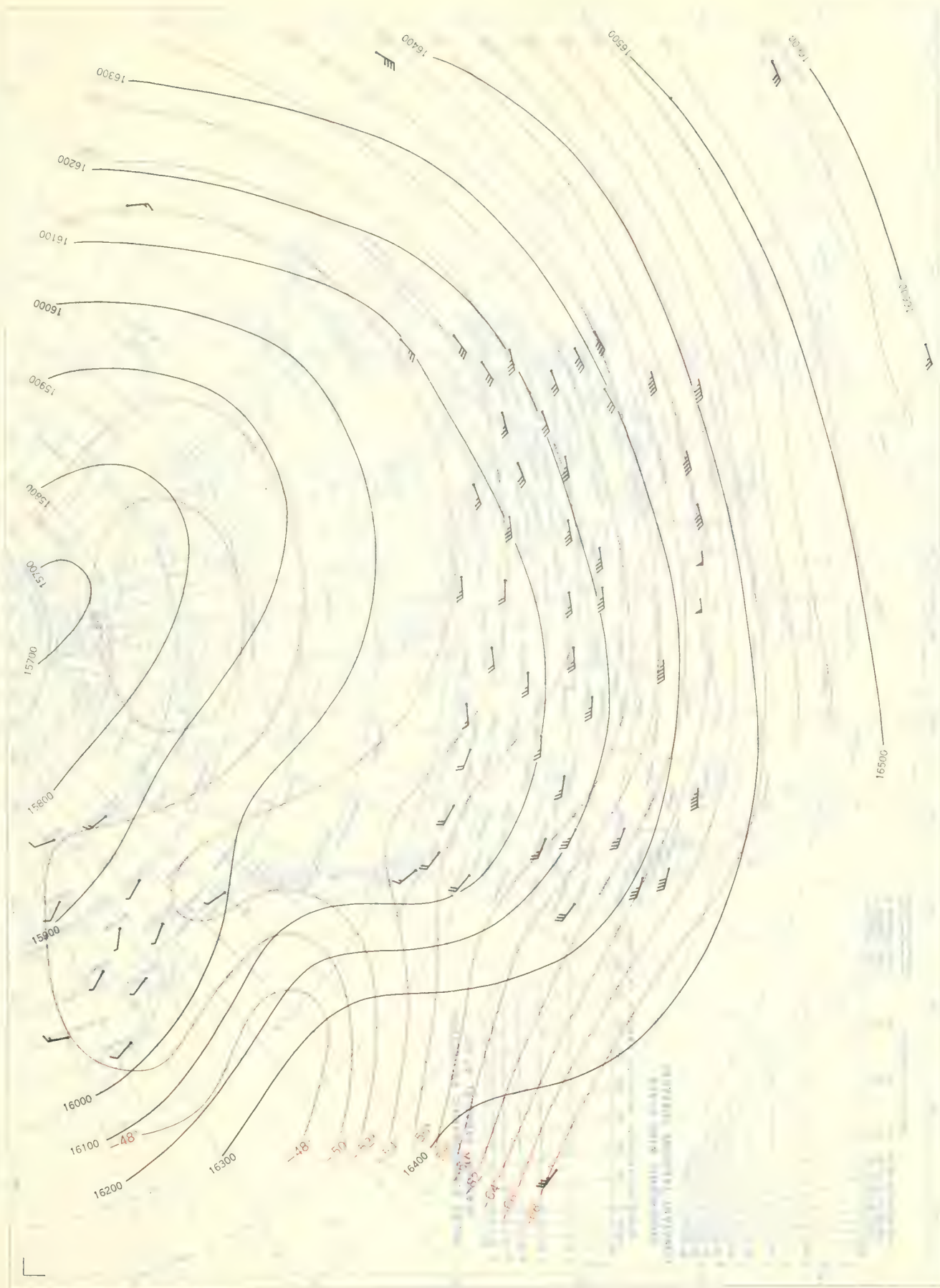
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, April 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, April 1958. Average Height and Temperature, and Resultant Winds.



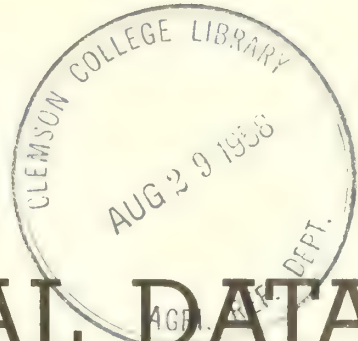
See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE

SINCLAIR WEEKS, Secretary

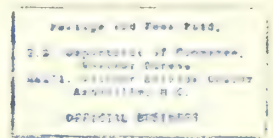
WEATHER BUREAU

F. W. REICHELDERFER, Chief



CLIMATOLOGICAL DATA

NATIONAL SUMMARY



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MAY 1958

Volume 9 No. 5



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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

MAY 1958

Volume 9 No. 5

GENERAL SUMMARY OF WEATHER CONDITIONS

Precipitation continued deficient in many extreme north-central areas, while many sections in the South and several in the East were plagued with too much rain and resulting floods. Temperatures were abnormally mild everywhere, except in the upper Great Lakes and the Atlantic Coastal States where they averaged slightly below normal. Persistent above normal temperatures in the Rocky Mountain and Pacific States produced rapid melting of the mountain snowpack, which kept streams high but no serious flooding occurred. Freezing was limited to northern sections and caused no serious crop losses. Damaging storms were fewer this May than they have been in May for the past several years.

TEMPERATURE.--From the western Great Plains to the Pacific coast, temperatures were persistently above normal and averaged from 4° to over 8° above normal for the month. Throughout the area this was one of the warmest Mays on record. Stations with long records reporting their warmest May included Winslow, Ariz., 67.8°; Helena, Mont., 60.7°; Kalispell, Mont., 60.3°; Walla Walla, Wash., 66.5°; Sheridan, Wyo., 60.4°; Los Angeles, Calif., 68.0°; and Yuma, Ariz., 84.9°. At the latter station the maximum temperature reached or exceeded 100° on 20 days, 17 of them consecutive which was a record for May. Several other widely scattered stations reported their second or third warmest May on record.

Several outbreaks of cold air occurred east of the Rockies, none of which reduced temperatures more than the normal expectancy. Freezing was rather general in the upper Mississippi Valley and Great Lakes region during the first decade, and in the Northeast on the 10th. Although few new low records were set, Columbus, Ga., recorded its lowest May temperature of 40° on the 10th, and Burlington, Vt., reported a new low of 29° for the 6th. Owing to the persistent colder-than-normal temperatures in the Northeast, average temperatures were among the lowest on record there for May.

PRECIPITATION.--The May precipitation pattern, relative to normal, was very uneven, with amounts being above normal in about one-fourth of the Nation and below in the other three-fourths.

May deficiencies had their worst effects in north-central areas, where accumulated shortages for the year were near record proportions. The dry period continued in these areas until the last 2 days of the month when most sections received moderate to heavy rains. These rains, however, were too light for adequate relief in the Dakotas, eastern Montana, and northern portions of Minnesota, Wisconsin, and Michigan. The effects of the long dry spell were felt as far south as St. Louis, Mo., where the Mississippi River fell to its second lowest stage, 2.3 feet, since 1861. Glasgow, Mont., measured only 0.03 inch for the month, the driest May there on record; and several stations including Detroit, Mich., with an accumulated deficiency of 8.36 inches, measured their least amount of precipitation on record for the period January 1 through May 31. Reports from Michigan indicated that some crops, even where good rains fell during May, were not expected to make full recovery.

Deficiencies outside north-central areas had no ill effects on crops, as soil moisture was still ample to excessive from generous rainfall of preceding months.

Relative to normal the heaviest precipitation fell in California, where many stations recorded over 300 percent of their usual May amounts even though monthly totals generally were less than 2 inches. At Fresno, May was the seventh consecutive month with above normal precipitation, and the seasonal total, 18.97 inches, was the greatest on record.

East of the Rockies, except in north-central areas and the extreme western Great Plains, monthly totals were generally 2 to over 4 inches but ranged up to 10 inches or more locally. Miami, Fla., for instance, recorded 16.15 inches, its second greatest May total since records began in 1911.

Precipitation was well above normal along the Atlantic coast from northern Florida to southern New England. In the latter area which suffered from severe drought in 1957, precipitation has been much above normal for the entire spring. At Boston, Mass., precipitation for the period November 1957 through April 1958 totaled 40.04 inches, the most for any period of 6 consecutive months on record and an inch greater than the normal amount for an entire year. This wettest period at Boston followed the driest 10-month period there on record, January through October 1957.

Flooding plagued many southern and eastern areas. During the second week, serious flooding developed in the western Virginia - eastern Kentucky - southern West Virginia area, causing damage expected to total in the millions. During the second and third weeks serious flooding occurred along many streams of the lower Mississippi Valley, in eastern Texas, and along the Tar and Neuse Rivers in North Carolina. The highest flood on record for May developed on the main stem of the Ohio River.

DESTRUCTIVE STORMS AND UNUSUAL PHENOMENA.--Hail, occurring as usual in numerous sections of the mid-continent area, appears to have been the most destructive weather element of the month. Individual storms, taking a toll of over a half million dollars, each, occurred in Monoma and Harrison Counties, Iowa, on the 26th; Logan County, Kansas, on the 12th; Kimball County, Nebraska, on the 25th; Reeves, Ward, Ector, and Midland Counties, Texas, on the 2d, and in Midland County of the latter State again on the 25th, with wind a contributing factor in each storm.

Tornado damage, slightly over \$2 million, was less than 50 percent of average and less than 20 percent of that which was reported for May 1957. These storms seem to have spent their greatest fury in Wisconsin, where outbreaks on the 17th, 24th, and 31st were responsible for 6 injuries and property damage in excess of a half million dollars. A tornado at Tule Lake, Calif., on the 22d and another at Fairbanks, Alaska, on the 16th were both noteworthy because of the rarity of development of this type of storm in these sections of North America.

CONDENSED CLIMATOLOGICAL SUMMARY

MAY 1958

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Fayette	97	24	Alexander City GNE	34	8	Pickensville	11.08	Billingsley	0.59
Arizona	7 Stations	114	29+	Alpine	20	14+	Hillside 5NE	1.55	24 Stations	.00
Arkansas	Crossett 7S	96	14	Lead Hill	32	7	Rison	15.13	Texarkana WB AP	2.48
California	Indio US Date Garden	113	29	White Mountain 1	5	13	Volta PH	2.94	35 Stations	.00
Colorado	Eversoll Ranch	101	30	2 Stations	12	1	Cherry Creek Dam	6.29	2 Stations	T
Connecticut	Danbury	84	19	do	28	10+	Putnam Lake	5.98	New Hartford	2.62
Delaware	4 Stations	87	31+	Newark Univ. Farm	38	10	Shelbyville	5.12	Bridgeville 1NW	3.63
Florida	Perry	97	31	2 Stations	38	8	Peters	20.51	Cedar Key	.28
Georgia	2 Stations	96	31+	Blairsville Exp. Sta.	31	8	Neel Gap	8.33	Warrenton	.75
Idaho	do	101	27+	Obsidian 2NNW	15	1	Deer Flat Dam	2.90	Ft. Hall Ind Agency	1.10
Illinois	Du Quoin 2S	93	16	Stockton 1N	27	5	Grand Tower 2N	5.58	2 Stations	.58
Indiana	3 Stations	90	31+	Winona	27	7	Oolitic Purdue Exp. Fm.	8.85	Columbia City	.54
Iowa	Onawa	93	11	Saratoga 2E	25	5	Bedford	5.59	Williamsburg	.37
Kansas	2 Stations	101	31+	Council Grove	34	1	Deerfield 10NNW	9.98	Fowler 7NNE	1.12
Kentucky	Leitchfield	93	15	Frankfort Lock 4	30	1	Elkhorn City	9.16	Louisville Upper Gage	2.02
Louisiana	Rayne 6N	99	31	Angola	42	7	Slidell	17.74	Kinder 3W	.72
Maine	Bridgton 1NNW	86	19	2 Stations	19	6+	Bar Harbor	5.14	Brassna Dam	1.74
Maryland	2 Stations	90	31+	New Germany	29	22+	Rock Hall 3N	8.85	Dalecarlia Reservoir	1.90
Massachusetts	Lowell	89	19	2 Stations	27	3	East Wareham	6.58	West Otis	1.04
Michigan	2 Stations	88	17+	Vanderbilt Trout Sta.	13	2	Stambaugh	3.58	Standish 2S	.22
Minnesota	Bird Island	94	29	2 Stations	14	1	Cambridge State Hosp.	4.42	Marshall	.31
Mississippi	Clarksdale	96	31	Fulton 3W	36	7	Standard	16.28	Enterprise	2.55
Missouri	Kennett Radio KBOA	96	31	Berryman 4NW	27	7	Caruthersville	8.93	Cook Station	1.06
Montana	Miles City	99	28	Lakeview	11	1	Polson	3.15	2 Stations	.00
Nebraska	2 Stations	95	21	2 Stations	26	1	Falls City	6.46	Fort Robinson	.66
Nevada	3 Stations	105	28+	Mala Vista Ranch	17	1	Pioche	1.84	Mountain City RS	T
New Hampshire	Windham	89	19	Fabyan	17	4	Benton	4.72	Concord WB Airport	1.92
New Jersey	Burlington	90	31	Layton 3NW	24	10	Toms River	6.45	Pleasant Run	2.70
New Mexico	Carlsbad CAA AP	105	30	Tererro	13	9	Rutledge Ranch	5.91	6 Stations	.00
New York	Dansville	88	19	Gravesville 2N	20	10	Babylon	6.91	Brockport 2NW	1.00
North Carolina	Caroleen	93	15	Transou	30	14	Weldon	12.00	Yadkinville 6E	1.60
North Dakota	6 Stations	95	30+	3 Stations	10	1	Forbes 13NW	5.38	2 Stations	.00
Ohio	Ironton	90	15	Mansfield 6W	26	8	Ironton	8.06	Gibraltar Island	1.04
Oklahoma	Tipton 4S	106	31	Mutual 2NE	37	1	Zoe	8.96	Weatherford	.36
Oregon	2 Stations	100	26	Fremont	13	2	Marion Fork Fish Hat.	2.98	Buena Vista Sta.	.09
Pennsylvania	Bethlehem Lehigh Univ.	90	31	Coudersport 3NW	20	10	Somerset Main St.	6.05	Erie WB Airport	1.60
Rhode Island	Greenville	80	19	Kingston	32	3	Block Island WB Airport	5.25	Greenville	3.58
South Carolina	Tilghman Forest Nursery	96	18	Chester 2SW	37	8	Sassafras Mountain	6.78	Edgefield 1ENE	.78
South Dakota	Shadehill Dam	96	29	Deerfield 5NW	19	1	Hermosa 1ENE	4.10	Brookings 1NE	.10
Tennessee	2 Stations	94	18+	3 Stations	32	14+	Kingsport 3SE	9.02	Ooltewah	1.54
Texas	Presidio	111	30	Spearman	36	1	Blanco	11.30	Cornudas Serv. Sta.	T
Utah	2 Stations	100	28+	2 Stations	18	2+	Veyo Power House	2.25	Idapah	.00
Vermont	Bennington 2NW	84	31	Lemington	18	3	Lemington	3.84	South London Derry	2.05
Virginia	2 Stations	91	19+	2 Stations	33	22+	Bristol	11.14	Bowling Green	2.10
Washington	3 Stations	103	27+	Blue Glacier	13	12	Spruce	3.04	2 Stations	T
West Virginia	Williamson	92	19	Moorefield McNeill	28	22	Sutton 2	8.46	Wardensville RM Farm	2.68
Wisconsin	2 Stations	89	17+	Brule Island	16	5	Eau Claire	5.81	Brodhead 1SW	.33
Wyoming	Devils Tower	99	30	Foxpark	9	1	Lander WB AP	5.22	Ten Sleep 19SSE	T
Puerto Rico	2 Stations	95	27+	Dos Bocas	60	2	Saint Just	34.32	Lajas	2.79

+ And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

MAY 1958

State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind		No. of days								
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	Max. 90° F or above	Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	On inch or more	No. of days	Snow, Sleet	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile	(sunrise to sunset)							
																											Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover tenths sunrise to sunset	Possible sunrise
Ft.	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	In	In	In	In	In	In	In	M. h.	M. h.										
ALABAMA																																		
Birmingham	610	990.7	1015.9	84	59	71.2	1.7	92	31+	41	8	6	0	58	67	2.33	-1.41	1.56	8	6	0.0	0	6.9	S	26	NW	7	8	11	12	6.0	75		
Mobile	211	1007.6	1015.6	84	64	73.6	2	92	28+	49	7	4	0	64	76	4.98	3.4	1.30	11	11	0	0	9.6	S	24	NW	7	9	6	16	6.5	91		
Montgomery	198	1007.5	1015.6	84	62	73.4	9	93	28	45	8	8	0	61	69	3.52	.06	2.47	6	3	0	0	5.9	S	24	NW	7	7	9	15	6	1		
ARIZONA																																		
Flagstaff	6993	-----	-----	72	36	53.9	3.9	86	28	25	1	0	9	---	---	45	-.08	30	3	5	0	0	5.8	---	---	---	---	---	---	---	---	---		
Phoenix	1114	970.9	1009.1	96	66	81.3	5.8	110	29	56	14	23	0	42	27	08	-.09	07	2	0	0	0	5.8	E	31	SSW	11	17	9	5	3	97		
Prescott	5014	846.6	1011.5	82	48	65.0	4.1	95	28	37	1	5	0	33	---	58	-.28	29	2	2	0	0	9.9	SSW	43	NW	2	14	11	6	1	85		
Tucson	2558	922.8	1008.9	95	64	79.1	6.0	107	28	52	12	22	0	33	20	02	-.19	02	1	2	0	0	8.2	SE	29	E	20	17	10	4	3	93		
Winslow	4880	850.3	1009.3	86	50	67.8	5.8	100	28	40	4+	10	0	26	25	26	-.06	13	5	5	0	0	7.3	WSW	38	WSW	2	13	11	7	1	4		
Yuma	199	1003.7	1008.7	101	69	84.9	4.5	113	28	59	14	27	0	39	25	.05	-.03	05	1	0	0	0	7.1	WNW	20	SE	30+	21	6	4	2	96		
ARKANSAS																																		
Fort Smith	458	998.0	1014.6	82	59	70.7	1.1	94	31	42	6	4	0	60	74	5.61	.55	2.14	10	10	0	0	7.9	ENE	28	N	21	8	9	14	6	2		
Little Rock	257	1002.4	1015.4	81	62	71.5	1.7	92	24+	47	6	3	0	59	68	7.84	2.99	3.36	8	6	0	0	8.3	ENE	23	SW	31	10	4	17	6	1		
Texarkana	361	-----	1015.3	83	63	72.7	1.8	91	31+	48	6	5	0	---	---	2.48	-.26	.75	9	7	0	0	7.7	NE	---	---	---	---	---	---	---	---		
CALIFORNIA																																		
Bakersfield	489	994.9	1012.9	86	59	72.0	1.8	96	16	49	13	8	0	49	49	.88	.53	82	3	1	0	0	8.0	NW	31	N	23	16	9	6	3	7		
Bishop	4108	871.7	1010.8	84	45	64.7	2.1	91	19+	37	12	4	0	---	---	08	-.12	.08	1	1	0	0	---	---	---	---	---	---	---	---	---	---		
Blue Canyon	5280	839.1	1014.2	82	46	53.9	1.7	75	17	33	13+	0	0	---	---	1.98	-.50	.94	6	4	0	39	6.3	---	26	WSW	22	16	8	7	3	8		
Burbank	699	987.8	1014.1	78	56	67.0	3.0	88	4	49	13	0	0	52	64	T	-.27	T	0	0	0	0	3.7	S	18	WNW	22	14	8	9	4	7		
Eureka (U)	43	1014.2	1016.6	60	50	55.2	2.3	69	18+	40	13	0	0	---	---	1.26	-.56	.88	6	1	0	0	5.4	---	27	SW	27	6	4	21	7	5		
Fresno	331	1000.7	1012.6	84	55	69.9	1.0	94	17+	46	13	5	0	49	53	.79	.51	64	2	0	0	0	6.6	NW	24	S	22	20	5	6	3			
Los Angeles (U)	312	-----	-----	77	59	68.0	3.2	87	28	54	13	0	0	54	66	.04	-.22	.03	2	0	0	0	5.7	---	18	W	22+	12	10	9	4	8		
Los Angeles	99	1010.5	1014.3	74	59	66.4	4.3	79	28	54	13	0	0	55	70	.01	-.29	.01	1	0	0	0	7.5	WSW	28	W	22	9	10	12	5	3		
Mt. Shasta (R)	3544	891.3	1014.2	72	42	57.0	3.5	84	16	30	13	0	1	---	---	1.39	-.28	.85	5	1	0	0	---	---	---	---	---	---	---	---	---	---		
Oakland	3	1015.2	1015.5	70	54	61.9	3.5	91	15	48	14+	1	0	50	71	.36	-.25	.25	2	0	0	0	9.0	WSW	25	WSW	11	15	8	7	4	7		
Red Bluff	341	1000.7	1013.2	83	55	68.9	9	97	16	47	13	5	0	49	54	1.49	.43	.95	4	0	0	0	7.9	SSE	25	SE	18	17	9	5	3			
Sacramento	17	1012.2	1013.3	81	53	66.9	2.9	95	16	45	13	3	0	51	61	.76	.32	.70	3	0	0	0	9.2	SW	31	SE	9	17	8	6	3			
Sandberg (R)	4517	862.2	1012.2	70	50	59.9	3.2	81	17	38	13+	0	0	---	---	.28	.03	.28	1	2	0	0	13.1	---	35	SE	5	18	8	5	3	4		
San Diego	19	1010.8	1013.7	72	59	65.9	2.7	80	22	54	13	0	0	56	73	.40	.14	.40	2	1	0	0	7.5	NW	22	S	11	14	8	9	4	8		
San Francisco (U)	52	-----	-----	65	54	59.5	2.4	87	15	49	13+	0	0	---	---	.88	.29	.75	3	1	0	0	9.7	---	26	W	7	17	8	9	4	7		
San Francisco	8	1014.9	1015.5	71	54	62.4	5.8	91	15	46	14	1	0	51	71	.33	-.07	.22	3	0	0	0	12.2	WNW	31	SW	9	13	9	9	4	6		
Santa Maria	238	1006.8	1015.4	69	48	58.6	5.9	82	15	37	13	0	0	51	78	.21	-.11	.21	1	1	0	0	5.4	WNW	28	WNW	28	9	13	9	5	5		
COLORADO																																		
Alamosa	7536	773.1	1015.7	72	36	53.8	3.0	80	30	28	4+	0	8	---	---	.38	-.19	.13	9	10	0	0	---	---	---	---	---	---	---	---	---	---		
Colorado Springs	6173	811.7	1014.1	75	46	60.2	4.8	87	30+	37	1+	0	0	39	54	4.79	2.73	1.66	15	17	0	0	10.1	NNW	35	NNW	17	1	20	10	6	3		
Denver	5292	838.8	1014.0	74	49	61.7	5.4	87	29+	40	1	0	0	39	51	4.46	2.26	1.98	10	12	0	0	11.5	SSW	38	S	11	8	12	11	5	8		
Grand Junction	4849	858.5	1012.0	80	51	65.6	3.5	93	28+	43	15+	5	0	30	31	.34	-.34	.22	5	2	0	0	9.6	ESE	43	SW	11	12	12	7	4	7		
Pueblo	4639	856.8	1013.2	80	50	64.8	5.6	94	30+	38	4	4	0	43	53	2.30	.57	1.41	9	11	0	0	8.9	ESE	40	S	11	7	14	10	5	7		
CONNECTICUT																																		
Bridgeport	7	1015.5	-----	63	48	55.5	-1.7	76	30	38	10	0	0	---	---	4.26	.66	1.07	13	0	0	0	---	---	---	---	---	---	---	---	---	---		
Hartford	169	1010.2	1016.3	65	45	55.1	-4.6	81	31	34	14+	0	0	43	68	3.13	-.53	1.24	15	1	0	0	12.4	S	34	SW	22	5	10	16	7.2	43		
Middletown (U)	133	1010.9	-----	65	44	54.2	-3.6	82	31	35	14	0	0	---	---	3.90	-.24	1.25	13	0	0	0	8.9	---	39	SW	9	---	---	---	---	---		
New Haven	5	1015.4	1015.9	63	45	53.7	-3.0	75	31	35	9	0	0	---	---	4.57	.70	1.42	15	1	0	0	7.2	---	20	N	13+	4	10	17	7.1	53		
DELAWARE																																		
Wilmington	78	1012.7	1016.1	70	51	60.7	-2.1	85	31	42	14+	0	0	50	72	3.89	.08	1.50	11	3	0	0	8.6	S	---	---	---	---	---	---	---	---		
DIST. OF COLUMBIA																														</				

CLIMATOLOGICAL DATA

MAY 1958

State and station	Elevation (ground) Station Sea level	Pressure		Temperature										Precipitation										Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		Station	Sea level	Average maximum		Average minimum	Average	Departure from normal				No. of days		Average dew point	Average relative humidity		Total		Departure from normal		Greatest in 24 hours		No. of days		Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile			Date	Clear	Partly cloudy	Cloudy																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
				°F	°F			°F	°F	°F	°F	°F	°F		°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F			°F							°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	

CLIMATOLOGICAL DATA

MAY 1958

State and station	Elevation (ground) Station	Pressure			Temperature										Precipitation						Wind				No. of days		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	Of inch or more	With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile	Direction		Late	Clear	Partly cloudy	Sky cover tenths sunrise to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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CLIMATOLOGICAL DATA

MAY 1958

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)																																		
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days 90° F or above	No. of days 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	In. or more	With thunderstorms	Snow, Sleet	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																
Ft	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	°F	Max. 90° F or above	Min. 32° F or below	°F	%	In.	In.	In.	In.	In.	In.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	O-4	4-7	8-10	10-100	%																																		
TENNESSEE (Cont'd.)																																																															
Oak Ridge	905	983.9	-----	79	57	67.9	1.9	90	15	40	8	1	0	--	--	3.17	-1.01	0.78	12	7	0.0	0	3.7	---	*40	---	17	10	6	15	6.2	--																															
TEXAS																																																															
Arlene	1759	952.9	1013.3	84	60	72.0	.3	99	27	48	5+	9	0	58	67	3.45	-.23	1.15	11	7	.0	0	9.1	SSE	49	N	27	13	9	9	5.0	68																															
Amarillo	3590	888.9	1012.7	80	54	66.7	2.9	97	30	42	1	5	0	52	66	2.45	-.56	.80	11	13	.0	0	11.2	SSE	47	NW	29	9	8	14	5.0	70																															
Austin	615	992.9	1014.4	87	65	76.0	-.8	97	27	55	6+	11	0	64	70	3.67	-.70	2.68	5	8	.0	0	7.9	S	25	N	19	10	12	9	5.3	61																															
Brownsville	16	1010.5	1013.2	86	69	77.5	-1.4	90	31	60	5	4	0	70	82	1.71	-1.38	.92	8	3	.0	0	9.9	SE	31	S	3	9	14	8	5.6	68																															
Corpus Christi	41	1012.2	1013.4	86	69	77.4	0	94	25	55	7	9	0	69	78	.81	-.26	.24	4	4	.0	0	9.2	SSE	30	SE	3	11	12	5.7	83																																
Dallas	487	995.3	1013.8	85	65	74.8	1.1	99	27	52	6+	9	0	61	65	1.57	-.30	1.34	7	6	.0	0	9.3	S	26	S	8	12	8	11	5.1	76																															
Del Rio (U)	957	-----	-----	88	65	76.9	-.5	99	27	54	1	15	0	---	---	6.17	3.70	3.55	8	8	.0	0	---	---	---	---	---	---	---	---	---	---																															
El Paso	3920	884.9	1010.7	87	61	74.2	2.6	100	27	51	3	11	0	40	31	.40	-.01	.23	7	9	.0	0	11.6	SSE	38	N	30+	14	11	6	4.2	85																															
Fort Worth	544	993.6	1014.3	83	63	73.1	-.2	98	27	50	8	8	0	61	70	1.50	-.32	.79	7	7	.0	0	10.5	S	*29	SSW	8	12	9	10	4.4	---																															
Galveston (U)	7	1012.2	1014.4	82	73	77.3	1.6	90	28	62	6	2	0	---	---	.46	-.24	.38	4	1	.0	0	11.4	---	28	S	8	11	12	5.8	---																																
Galveston	5	1012.2	1014.4	83	72	77.5	1.6	90	27	63	8	2	0	69	76	.52	-.27	.31	4	2	.0	0	12.8	S	---	---	---	---	---	---	---	---																															
Houston (U)	41	1008.8	-----	86	70	78.0	2.1	95	26	58	6	9	0	---	---	1.55	-.32	1.28	4	5	.0	0	8.5	SE	30	SE	2	7	12	6.2	63																																
Houston	50	1010.8	1013.8	86	68	77.2	2.5	96	28	58	6	9	0	66	73	2.40	-.25	1.05	8	8	.0	0	10.7	S	---	---	---	---	---	---	---	---																															
Laredo	500	997.3	1012.7	91	68	79.6	-1.6	99	27	60	7+	19	0	64	64	2.31	-.87	2.02	6	5	.0	0	10.6	SE	*29	NW	13	13	6	12	5.1	---																															
Lubbock	3243	902.1	1012.3	83	55	68.9	-1.1	101	30	43	3	8	0	53	63	2.94	-.42	1.38	10	9	.0	0	12.5	SSE	*35	ENE	18	9	14	8	5.1	---																															
Midland	2854	915.0	1012.7	86	58	71.8	-1.5	101	30	45	1	11	0	52	56	3.24	1.17	1.36	5	4	.0	0	10.0	ESE	*52	SSW	11	16	7	14	5.4	---																															
Port Arthur	16	1013.2	1014.7	85	67	76.2	-1.8	95	27	57	6	2	0	67	77	2.69	-1.71	.78	9	7	.0	0	10.5	S	35	N	28	4	13	14	6.3	58																															
San Angelo	1903	946.8	1013.2	84	60	72.1	-1.5	99	27	46	5	10	0	56	63	2.87	-.09	2.12	8	7	.0	0	9.6	SSW	*58	NNW	17	14	5	12	4.6	---																															
San Antonio	792	989.2	1013.7	86	64	75.1	-.9	94	27	53	7	9	0	62	70	1.98	-1.54	1.51	7	7	.0	0	8.4	SSE	26	NE	2	11	10	10	5.3	69																															
Victoria	110	1008.8	1013.5	87	67	77.0	-.4	93	29	58	7	9	0	66	71	.93	-.30	.22	8	7	.0	0	8.8	SSE	*42	SSE	2	4	15	12	6.2	---																															
Waco	500	995.3	1013.9	86	64	75.0	-.5	98	28	53	1	8	0	62	68	5.58	1.43	4.31	5	5	.0	0	9.7	SSE	*35	WSW	2	13	11	7	5.0	---																															
Wichita Falls	1020	977.3	1013.5	83	61	71.9	1.4	100	31+	47	5	8	0	59	69	4.43	.57	2.87	10	10	.0	0	8.6	S	*24	SSE	7	12	8	11	5.3	---																															
UTAH																																																															
Millard	5028	843.6	1013.2	79	40	59.7	2.9	90	28+	29	1	2	2	---	---	1.19	.45	.63	3	3	T	0	---	---	---	---	17	8	6	3.6	---																																
Salt Lake City	4220	866.2	1012.1	81	50	65.1	6.2	93	19	36	1	7	0	37	40	.30	-1.26	.09	5	5	T	0	10.0	SSE	34	S	11	11	10	10	5.0	90																															
VERMONT																																																															
Burlington	331	999.7	1014.7	62	41	51.9	-3.5	80	28	29	6+	0	5	39	62	2.93	.04	.68	13	3	T	0	10.9	SSW	31	S	25	3	12	16	7.2	56																															
VIRGINIA																																																															
Lynchburg	947	982.9	-----	73	53	63.3	-1.7	86	4	43	9	0	0	---	---	5.45	2.36	1.00	17	8	.0	0	7.5	---	56	N	19	7	4	20	6.9	54																															
Norfolk	26	1014.8	1016.3	76	57	66.7	-.8	88	4	50	9+	0	0	57	73	6.23	2.78	2.58	11	4	.0	0	9.7	SSW	35	N	28	6	8	17	6.9	54																															
Richmond	162	1010.2	1016.6	76	55	65.7	-.1	89	15+	44	14+	0	0	56	74	5.79	2.15	2.30	13	7	.0	0	7.9	SSW	27	N	28	6	9	16	6.8	52																															
Roanoke	1174	974.3	1016.6	75	54	64.6	-.1	87	31+	44	14+	0	0	52	70	5.00	1.38	1.50	16	8	.0	0	7.3	SE	---	---	---	5	9	17	6.9	---																															
WASHINGTON																																																															
Olympia	190	1008.5	1016.0	73	46	59.3	5.2	89	18	29	13	0	1	46	66	1.47	-.19	.46	7	3	.0	0	5.1	SW	*29	SSW	18	5	12	14	6.6	---																															
Seattle (U)	14	-----	-----	72	53	62.3	5.0	87	18	42	12	0	0	---	---	.92	-.69	.28	8	3	.0	0	8.3	---	32	S	19	7	12	12	6.2	67																															
Seattle	14	1014.9	1015.9	---	---	---	---	---	---	---	---	---	---	---	---	47	60	---	---	---	---	---	---	7.3	NNW	---	---	---	---	---	---	---																															
Seattle-Tacoma	386	1001.7	1015.8	71	50	60.4	5.3	89	18	39	13+	0	0	47	67	.94	-.70	.57	8	3	.0	0	11.0	N	*29	SW	26	6	11	14	6.5	---																															
Spokane	2357	944.8	1013.2	76	50	62.7	8.0	92	27+	36	13	2	0	44	55	.71	.33	.28	5	1	.0	0	7.7	SW	31	SW	27	10	12	9	5.4	83																															
Stamper Pass (R)	3958	879.8	1017.6	60	42	51.3	6.8	81	26	27	12	0	3	---	---	.98	-.37	.47	7	2	75	---	---	---	---	---	---	---	---	---	---	---																															
Tatoosh (R)	101	1013.5	1016.6	58	49	53.4	2.5	68	17	43	13	0	0	49	86	1.30	-2.01	.51	8	0	.0	0	11.5	SSW	42	S	23	2	8	21	8.0	56																															
Walla Walla (U)	949	977.3	1012.5	79	55	66.5	5.3	94	26	41	12	5	0	---	---	2.36	1.10	1.62	7	4	.0	0	5.2	---	23	S	24	11	12	8	4.8	78																															
Yakima	1061	974.3	1013.1	81	47	64.0	4.9	98	26	30	13	7	1	41	47	.59	.12	.52	3	4	.0	0	6.2	WNW	*35	SW	26	10	14	7	5.0	---																															
WEST VIRGINIA																																																															
Charleston	950	980.4	1016.0	75	52	63.4	-.3	85	22+	42																																																					

HEATING DEGREE DAYS

(Base 65° F.)

MAY 1958

State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				KANSAS				NEW YORK				TEXAS (Cont'd.)			
Birmingham	25	3257	2780	Concordia (U)	67	5544	5303	Albany	322	6606	6912	Port Arthur	0	1717	1517
Mobile	7	2192	1612	Dodge City	67	5314	5043	Binghamton	407	7430	7449	San Angelo	14	2813	2107
Montgomery	17	2615	2137	Goodland	121	6344	6309	Buffalo	343	6536	6766	San Antonio	0	1816	1579
ARIZONA				Topeka (U)	56	5109	4906	New York (U)	205	4909	5032	Victoria	0	1448	1126
Flagstaff	338	6858	7313	Topeka	76	5395	5194	New York	193	4809	4979	Waco	7	2341	2025
Phoenix (U)	0	1339	1492	Wichita	44	4984	4564	Rochester	337	6718	6809	Wichita Falls	18	3420	3025
Phoenix	0	1437	1698	KENTUCKY				Schenectady	279	6211	7010	UTAH			
Prescott	91	4389	4516	Lexington	92	5174	4964	Syracuse	330	6647	6483	Milford	184	6190	6368
Tucson	0	1758	1776	Louisville	59	4727	4434	NORTH CAROLINA				Salt Lake City	106	5512	5785
Winslow	47	4338	4694	Pikeville (U)	54	4203		Asheville (U)	70	4726	4067	VERMONT			
Yuma	0	688	951	LOUISIANA				Cape Hatteras (R)	35	3108	2392	Burlington	405	7464	7793
ARKANSAS				Baton Rouge	1	1439	1595	Charlotte	28	3622	3205	VIRGINIA			
Ft. Smith	27	3564	3188	Lake Charles	0	1657	1543	Greensboro	57	4322	3810	Lynchburg	100	4659	4148
Little Rock	26	3227	2982	New Orleans (U)	0	1554	1175	Wilmington	15	2978	2323	Norfolk	44	3498	3454
Texarkana	13	2749	2362	New Orleans	0	1711	1317	Winston-Salem	47	4156	3721	Richmond	70	4302	3955
CALIFORNIA				Shreveport	4	2471	2117	NORTH DAKOTA				Roanoke	82	4627	4152
Bakersfield	12	2107	2115	MAINE				Bismarck	204	8074	8917	WASHINGTON			
Bishop	51	4195	4184	Caribou	522	8628	9972	Devils Lake (U)	288	8849	9803	Olympia	187	4584	5318
Blue Canyon	339	5886	5517	Greenville (U)	515	8433		Fargo	237	8108	9173	Seattle (U)	116	3593	4331
Burbank	29	1357	1786	Portland	430	6883	7564	Grand Forks	279	8570		Seattle-Tacoma	163	4406	5120
Eureka (U)	295	3704	4350	MARYLAND				Pembina	342	8681		Spokane	143	5840	6706
Fresno	18	2549	2532	Baltimore (U)	46	4030	4203	Walliston (U)	189	7907	8930	Stamper Pass (R)	423	8191	8711
Los Angeles (U)	13	894	1432	Baltimore	107	4940	4782	OHIO				Tatoosh Island (R)	353	4600	5394
Los Angeles	4	882	1959	Frederick	148	5456	4854	Akron	256	6455	6153	Walla Walla (U)	71	4212	4810
Mt. Shasta (R)	244	5769	5739	MASSACHUSETTS				Cincinnati (U)	67	4707	4532	Yakima	112	5331	5792
Oakland	101	2443	3044	Blue Hill Obs. (R)	386	6355		Cincinnati	100	5323	5172	WEST VIRGINIA			
Red Bluff	24	2801	2546	Boston	262	5363	5749	Cleveland	218	5892	5960	Charleston	93	5003	4409
Sacramento (U)	27	2493	2595	Nantucket	428	5643	5963	Columbus	141	5604	5584	Elkins	233	6338	5720
Sacramento	31	2646	2815	Pittsfield	413	7318	7589	Dalton	188	5825	5558	Huntington (U)	84	4772	4068
Sandberg (R)	165	4421	4187	MICHIGAN				Sandusky (U)	202	5961	5818	Parkersburg (U)	113	5180	4737
San Diego	11	854	1531	Alpena (U)	462	7645	7938	Toledo	233	6308	6334	WISCONSIN			
San Francisco (U)	171	2496	2889	Detroit	228	6157	6344	Youngstown	276	6472	6119	Green Bay	366	7886	8152
San Francisco	90	2440	3257	Detroit (Willow Run)	213	6187	6414	OKLAHOMA				La Crosse	151	7133	7576
San Jose	50	2061	2364	East Lansing (U)	226	6459		Oklahoma City	24	4121	3644	Madison	221	7195	7335
Santa Maria	194	2514	2782	Escanaba (U)	482	7968	8491	Tulsa	23	3888	3584	Milwaukee	291	7166	7096
COLORADO				Grand Rapids	252	6797	6996	OREGON				WYOMING			
Alamosa	341	8475	8456	Marquette (U)	507	7970	8340	Astoria	285	4376	4773	Casper	207	7080	7492
Colorado Springs	166	6025	6179	Muskegon	304	6767	6973	Burns (U)	182	6411	6759	Cheyenne	255	7059	7389
Denver	138	5666	6067	S. Ste. Marie	595	8604	9251	Eugene	154	4186	4654	Lander	230	7409	8140
Grand Junction	84	5382	5773	MINNESOTA				Meacham	330	7109	7561	Sheridan	163	6810	7742
Pueblo	78	5275	5682	Duluth (U)	474	9042	9374	Medford	98	4444	4478	ALASKA			
CONNECTICUT				Duluth	450	9101	9759	Pendleton	91	4540	5153	Anchorage	533	9478	10450
Bridgeport	290	5511	5858	Internat. Falls	462	9558	10429	Portland (U)	128	3997	4539	Annette	392	5843	6775
Hartford	304	6152	6108	Minneapolis	169	7236	7773	Roseburg	139	3997		Barrow	1470	19406	19061
New Haven	342	5697	5974	Rochester	244	7594	8003	Salem	142	4156	4483	Barter Island	1342	19394	
DELAWARE				St. Cloud	266	8131	8787	Sexton Summit (R)	269	5933	5947	Bethel	791	11723	12508
Wilmington	149	5206	4904	MISSISSIPPI				PENNSYLVANIA				Cold Bay	749	8615	
DIST. OF COLUMBIA				Jackson	16	2838	2202	Allentown	232	5774	5855	Cordova	646	8346	9144
Washington (U)	67	4474	4258	Meridian	11	2811	2333	Harrisburg	148	5338	5244	Fairbanks	515	12879	13965
Washington	66	4443	4333	Vicksburg (U)	10	2554	2000	Philadelphia (U)	120	4588	4523	Juneau	518	7724	8546
FLORIDA				MISSOURI				Philadelphia	136	4976	4866	King Salmon	684	9916	
Apalachicola (U)	4	1706	1307	Columbia	72	5299	5099	Pittsburgh (U)	138	5297	5035	Kotzebue	1128	14677	15500
Daytona Beach	2	1280	868	Kansas City	52	5006	4880	Pittsburgh	207	6007	5869	McGrath	637	13008	14107
Fort Myers	0	756	405	St. Joseph	74	5659	5322	Reading (U)	149	5061	5049	Nome	1038	13225	13510
Jacksonville	7	1685	1243	St. Louis (U)	59	4795	4462	Scranton	256	6456	6012	St. Paul	908	10020	10134
Key West	0	203	77	St. Louis	69	5046	4688	Williamsport	218	5896	5873	Yakutat	614	7772	8889
Miami (U)	0	426	173	Springfield	58	4917	4677	RHODE ISLAND							
Miami	0	435	178	MONTANA				Block Island	394	5398	5747				
Miami Beach	0	272	123	Billings	105	6258	6987	Providence	309	5690	6067				
Orlando	0	1080	650	Glasgow	154	7631	8577	SOUTH CAROLINA							
Pensacola (U)	6	1900	1435	Great Falls	144	6726	7389	Charleston (U)	10	2338	1769				
Tallahassee	6	1869	1519	Havre (U)	133	7266	8088	Charleston	15	2588	1973				
Tampa	0	1017	674	Helena	167	7201	8053	Columbia	19	3025	2435				
West Palm Beach	0	516	248	Kalispell	171	7156	7840	Florence	14	2912	2507				
GEORGIA				Miles City	89	6663	7744	Greenville	30	3650	3060				
Athens	29	3483	2800	Missoula	173	6633	7697	Spartanburg	29	3693	3044				
Atlanta	29	3323	2826	NEBRASKA				SOUTH DAKOTA							
Augusta	19	2940	2138	Grand Island	115	6443	6272	Huron	164	7292	7822				
Columbus	19	2768	2396	Lincoln (U)	166	5907	5833	Pierre	152	7137					
Macon	15	2609	2049	Norfolk	112	6743	7015	Rapid City	129	6592	7387				
Rome	36	3742	3138	North Platte	137	6798	6487	Sioux Falls	148	7103	7768				
Savannah	14	2409	1710	Omaha	63	6061	6128	TENNESSEE							
IDAHO				Scottsbluff	124	6437	6760	Bristol	65	4688	4148				
Boise	119	5385	5798	Valentine	148	6932	6992	Chattanooga	40	3903	3384				
Lewiston	102	4775	5415	NEVADA				Knoxville	53	4014	3590				
Pocatello	155	6565	6840	Elko	258	7024	7152	Memphis	36	3618	3137				
ILLINOIS				Ely	332	7302	7243	Nashville	56	4151	3513				
Calro (U)	48	4168	3756	Las Vegas	3	2601	2425	TEXAS							
Chicago	149	6053	6252	Reno	176	5706	5871	Abilene	16	3052	2657				
Chicago University	194	6076		Tonopah	149	5854	5722	Amarillo	56	4716	4345				
Moline	125	6516	6319	Winemucca	206	6179	6258	Austin	0	1999	1713				
Peoria	114	6052	6046	NEW HAMPSHIRE				Brownsville	0	652	617				
Springfield	98	5672	5661	Concord	386	6838	7530	Corpus Christi	0	1071	1011				
INDIANA				Mt. Washington Obs.	1022	12931		Dallas	6	2590	2272				
Evansville	77	4942	4354	NEW JERSEY				Del Rio (U)	4	1667					
Ft. Wayne	206	6283	6234	Atlantic City (U)	221	4754	4717	El Paso	3	2765	2641				
Indianapolis	141	5821	5581	Newark	188	4990	5241	Ft. Worth	9	2806	2361				
South Bend	212	6416	6462	Trenton (U)	161	4973	5057	Galveston (U)	0	1382	1211				
IOWA				NEW MEXICO				Galveston	0	1441	1233				
Burlington	109	6233	6067	Albuquerque	24	4395	4389	Houston (U)	0	1499	1276				
Des Moines	98	6514	6401	Clayton	120	5452	5114	Houston	0	1631	1388				
Dubuque	183	7173	7195	Roswell	16	4013	3424	Laredo	0	1110	781				
Keokuk (U)	76	5778						Lubbock	33	4147	3587				
Sioux City	83	6553	6958					Midland	16	3180					

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Dyers (15 miles south of), Taylor County	1	1:30 p.m.			0	0			Tornado (sus- pected)	Moved eastward.
COLORADO Northeastern portion	1	Afternoon						3	Hail	Scattered areas of hail fell in northeastern Washington County near Otis and county line of Yuma and Kit Carson County near Bonny Dam Reservoir. Hail 1/2 to 3/4 inch in diameter and covered ground 2 inches deep. Damage hard to estimate because of soft variety of hail and early advancement of crops. Storm moved northeastward.
ILLINOIS Bloomington, McLean County	1	Afternoon	Short		0	0			Dust devil	Scattered laundry. Tipped back yard steel swing set. Girl lifted off her feet. Storm moved northeastward.
ILLINOIS East Peoria, Peoria County	1	4:30 p.m.	Short		0	0			Dust devil	Shook 1 house and scattered laundry.
MISSISSIPPI Columbus, Lowndes County	1	4:30-5 p.m.		*1			4	1	Wind	Severe thunderstorm blew trees down; smashed windows, and caused other damage, definitely not tornado. Wind estimated about 60 m.p.h. Storm moved southeastward.
ALABAMA Gordo (1 mile west of), Pickens County	1	6:30 p.m.					3	3	Hail	Roofs on 2 houses complete loss. Hailstones reported "size of ice cubes".
ALABAMA Tuscaloosa County	1	7 p.m.					4	1	Electrical and rain	Barn 4 miles north of Tuscaloosa burned, \$11,000 damage. TV antenna struck, several scattered power failures, and 200 telephones out in Tuscaloosa. Rain heavy. This was apparently same family of thunderstorms which gave hail in Pickens County.
	1									Minor storms also reported in Jasper and Putnam Counties, Ga.; in St. Clair County, Mich.; at Clearview, Mo.; and near Henderson, Tex.
TEXAS Clarendon (3 miles north- east of), Donley County	2	10:13 a.m.			0	0			Funnel aloft	Moved northeastward.
TEXAS Pearson to LaCoste (east of), Medina and Bexar Counties	2	10:25 a.m.	18	200	0	0	5	4	Tornado and wind	Tore roof from small school, blew it 2 blocks, partly collapsed walls, damaged gymnasium roof, unroofed 10 homes in town, damaged 30 buildings. Hit on farm east of city, destroyed barn, garage, hen house. Moved north-northeastward, damaged utility lines and small homes 6 miles east of Castroville. Lifted, moved northeastward into next county, damaged farm home, barn, and out-buildings. Winds damaged several other ranches and local businesses in northwestern Bexar County.
TEXAS Dallas (20 miles south of), Ellis County	2	11:15- 11:25 a.m.			0	0			Funnel aloft	Moved northeastward.
TEXAS San Antonio Airport (4-1/2 miles north- west of), Bexar County	2	11:25- 11:40 a.m.			0	0			Funnel aloft and rain	Moved northwestward. Accompanying heavy rain.
TEXAS San Antonio Airport (5 miles north of), Bexar County	2	11:45 a.m.			0	0			Funnels aloft and rain	2 funnels moved northward. Accompanying heavy rain.
TEXAS Reeves, Ward, Ector, and Midland Counties	2	11:50 a.m.	100	*15	1		°6		Wind and hail	80-m.p.h. wind and heavy hail. Storm lasted only about 10 minutes at Pecos, moved on. Destroyed small business building and 2 house trailers; damaged or destroyed many roofs, windows, phone lines and poles, TV antennas, trees, fences, and cars. 6,000 to 8,000 acres of cotton lashed by hail, not all destroyed. 20 to 30 farmers completely wiped out and will have to replant at about \$12 per acre. Farm worker 12 miles west of Pecos suffered broken back when

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS (cont'd)										wind lifted trailer which struck him. Piece of metal at Odessa blown through roof, hit and damaged 3 cars and wire fence. Winds reported 60-m.p.h., at Monahans. Storm moved eastward.
TEXAS San Marcos (27 miles north of), Hays County	2	3:20 p.m.			0	0	1	1	Tornado	Struck in open field; moved northeastward.
OKLAHOMA Braden (1 mile south- west of), LeFlore County	2	3:20 p.m.	1/4	100	0	0	4	1	Tornado	Passing motorist saw tornado demolish home near Highway 271. Several outbuildings damaged. Tornado moved northeastward.
TEXAS Taylor (north- west of), Williamson County	2	3:50 p.m.			0	0	1	1	Tornado	In open country; moved northeastward.
TEXAS Hutto (north of), William- son County	2	4:35 p.m.			0	0			Funnel aloft	Occurred during thunderstorm.
OKLAHOMA Chattanooga, Comanche County	2	4:45 p.m.			0	0	1	1	Funnel aloft	Funnel aloft sighted by several persons southwest of Chattanooga.
OKLAHOMA Marlow, Stephens County	2	8 p.m.				1	2	1	Electrical	Lightning struck TV antenna, burning hand and leg of woman adjusting set. Inside wall of house scorched.
TEXAS Leakey (3 miles north- west of), Real County	2	9:02 p.m.			0	0			Funnel aloft	
TEXAS Leakey (5 miles south of), Real County	2	9:36 p.m.			0	0			Funnel aloft	Moved eastward.
KENTUCKY Paducah (1-1/2 miles west of), McCracken County	2	P.m.			0	0	3		Tornado	Small tornado moved north-northeastward.
	2									Minor storms also reported at Payson, Ariz.; Inman, Kans.; and near Roff, Okla.
TEXAS Gregg, Harri- son, Cass, and Smith Counties.	3	1:45-2:30 a.m.	80	440	0	0	5		Tornado and wind	Unroofed garage 5 miles east of Tyler at 1:45 a.m. Traveled northeastward, and struck Oil Center community about 2:05 a.m. 1-1/2 miles west of Kilgore, did about \$5,000 damage to houses, roofs and powerlines. Stayed on ground for about 3/4 mile then lifted, passed over Longview, dropped back down near Sabine River bottom, uprooting and blowing over numerous trees. Then traveled to Hallsville area east of Longview. At about 2:45 a.m., was still traveling northeastward over path 1/4 to 1/2 mile wide and 2 miles long. In Hallsville to Harleton to Marshall areas, about 15 houses damaged, 2 completely destroyed; several barns unroofed and trees uprooted, powerlines and several trees blown down. Then apparently changed course and headed northward toward Hughes Springs. Strong winds in Longview tore off some roofs, knocked down antennas, and broke windows. On farm 4 miles south of Longview, winds destroyed 7,500 chickens and 47 hogs, with estimated loss to birds, animals, and buildings \$20,000.
TEXAS Hughes Springs (1-1/2 miles east of), Leesburg, and Cason, Cass, Morris, and Camp Counties	3	2:30 a.m.	30		0	0	4		Tornado, wind, and rain	Roofs blown away from 2 business buildings and about 12 houses; windows shattered by whirling wind, school damaged; 1 building moved. Interiors damaged by accompanying heavy rains. Part of squall line. Storm moved eastward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Medina, Frio, Atascosa, and Bexar Coun- ties	3	2:30-4 a.m.	20- 30	*5- 10	0	0	4	5	Tornado, hail, and wind	Tornado destroyed shop building, unroofed 2 homes at Fair Oaks; unroofed 1 house, damaged several others, ripped out 3 miles of powerlines south of Losoya. Hail and wind between Devine and Moore damaged or destroyed crops over about 200 square miles; some wildlife killed by hail. Storm moved east-northeastward.
TEXAS Lufkin (10 miles west of), Angelina County	3	3 a.m.			0	0	4		Tornado and wind	In Red Town community, 1 house and several out- buildings damaged, several barns unroofed; con- siderable damage to commercial timber. Winds 75-m.p.h., recorded. Part of squall line. Storm moved southeastward.
TEXAS Marshall (8 miles north- east of), Harrison County	3	3 a.m.	5	440	0	0	4		Tornado	In Nesbitt community roofs torn from 1 house and several outbuildings; considerable damage to 8 other homes. Large trees uprooted. Tornado moved southeastward.
TEXAS Kenedy (8 miles south of), Karnes County	3	8:50 a.m.			0	0	2		Tornado	In Green Community 2 farms hit, on each lifted roofs off barns and poultry houses, uprooted scrub trees, and tore up some billboards. Tornado moved southeastward.
OKLAHOMA Gage, (15 miles south of), Ellis County	3	12:20 p.m.			0	0	1	1	Funnel aloft	Reported on Oklahoma City radar message. No further information obtainable.
MISSOURI St. Louis County	3	1:15-2:40 p.m.			0	0	3		Tornado	Funnel cloud observed at Eureka at 1:15 p.m., moved eastward and apparently touched ground just east of Chesterfield, dropped to earth briefly at 2:20 p.m., at Carrolton damaging 2 houses.
ILLINOIS Baldwin, Sandoval, and Kinmundy Randolph and Marion Coun- ties	3	1:15-2:50 p.m.	70	100	0	0	4		Tornado	Moved rapidly northeastward, with intermittent and variable path. Heaviest damage to half dozen farmsteads near Sandoval, where witness reported 2 simultaneous funnels.
KANSAS Harper County	3	2:30 p.m.			0	0	1	1	Funnels aloft	2 funnel clouds aloft observed at about same time moving northeastward. One southeast of Waldron and the other directly west.
ILLINOIS Godfrey, Madison County	3	3 p.m.	1	10	0	0	3		Tornado	Barn wrecked. Picnic grounds damaged.
MISSOURI St. Charles area, St. Charles Coun- ty	3	3:20 p.m.			0	0	2		Tornado	Funnel moving northeastward touched ground just south of St. Charles Airport, damaging farm buildings.
ILLINOIS Collinsville, Madison County	3	3:30 p.m.	5	10	0	1	4		Tornado	Struck 3 separate spots in or near city. Funnel stayed aloft most of time. Man picked up and rolled 50 feet. Tornado moved northeastward.
KANSAS Osage County	3	3:30-3:45 p.m.	2	1320			4	3	Hail	Hail varying in size from 1/2 to 1 inch struck Osage City and area nearby. Automobiles, win- dows, roofs, greenhouses, gardens, and crops damaged. Ground covered to a depth of 3 inches. Storm moved southeastward.
ILLINOIS Sumner (near), Lawrence County	3	3:35 p.m.	3	150	0	0	4		Tornado	Moderate damage at 2 farmsteads 7 miles south- east of Sumner. Tornado moved northeastward.
KANSAS Osage, Frank- lin, and Douglas Coun- ties	3	4 p.m.	25	*3			3	4	Hail	Hail damage that ranged from light to heavy occurred from Vassar, Osage County to near Baldwin, Douglas County. Many stones golf-ball size and in localities covered ground. Some crops entire loss. Roofs, windows, and a few cars damaged. Storm moved eastward.
KANSAS Dickinson and Morris Counties	3	4-5 p.m.	10	*5			3	5	Hail	Heavy hail, with stones 1/2 inch in diameter that covered ground to depth of 2 inches and piled in drifts 2 feet deep which lasted until next day, damaged crops over 50-square mile area from near Herington to Wilsey. Storm moved southeastward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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ILLINOIS Edgar County (southeastern portion)	3	5:30 p.m.	6		0	0			Tornado	Witness reported funnel cloud aloft and on ground, but no damage. Tornado moved northeastward and later hit Shirkleville, Ind.
INDIANA Shirkleville, Vigo County	3	7 p.m.	2	200	0	0	4	1	Tornado	Tornado moved northeastward. 3 homes damaged in village. 5 nearby farms heavily damaged.
MISSOURI Columbia (west of), Boone County	3	8:30 p.m.							Funnels aloft	
OKLAHOMA Carter and Jefferson Counties	3	10:20 p.m.			0	0	1	1	Funnels aloft	2 funnels aloft sighted west of Healdton. Ryan, Ringling, and Waurika also reported sighting funnels about same time. Funnels moved north-eastward.
IOWA Burlington (10 miles west-southwest of), Des Moines County	3	10:21 p.m.			0	0	1	1	Funnel aloft	Reported by Ground Observer Corps.
OKLAHOMA Velma (near), Stephens County	3	P.m.			0	0	1	1	Funnel aloft	Funnel aloft reported by Duncan Police.
MISSOURI St. Joseph, Buchanan County	3						5		Rain	2.00 inches of rain in 2 hours plus heavy rains during preceding few days caused flooding of basements, streets, roads, and large land slides.
	3									Minor storms also reported at Anderson, Ind.; at Shenandoah, Iowa; and at Mt. Pleasant, Tex.
MISSOURI Harrison County (south- western corner)	3-4	Evening 3d- a.m. 4th					5	5	Rain and wind	Much flooding of lowlands. Minor wind damage.
OKLAHOMA Sallisaw, Sequoyah County	4	4:18 a.m.			0	0	1	1	Funnel aloft	Citizenry heard roar passing overhead; it lasted just a few minutes; moved northeastward.
MISSISSIPPI Jackson (4 miles north of), Hinds County	4	2 p.m.			0	0	1	1	Funnel aloft	Funnel moved northeastward.
MISSISSIPPI Brandon, Rankin County	4	2:25 p.m.			0	0	1	1	Funnel aloft	Accompanied by loud roar, but did not touch ground; moved northward.
MISSOURI Butler (18 miles east- southeast of), Bates County	4	3 p.m.							Funnels aloft	
MARYLAND Southern portion and southern East- ern Shore area	4	3-7 p.m.					5	5	Wind, hail, rain, and electrical	Severe thunderstorms, strong winds, torrential rains, and hail caused extensive damage to crops and buildings. Wheat and barley hard hit as well as early vegetable crops. In Salisbury area, powerlines downed, plate-glass windows broken in several stores, sewers backed water into city streets as flash flooding occurred in places. In Charles County, freak storm which lasted about 30 minutes caused damages estimated at \$200,000. Trees downed over roads and utility lines, windows broken by hail, tobacco barns destroyed by winds, roofs of houses blown off, signs demolished, etc. At Indian Head, hail broke 47 windows in church. Lightning struck home in La Plata, knocking off chimney and demolishing television antenna. Near Hughesville, strong winds destroyed over 20 tobacco barns many of which were filled with tobacco. Gusts of wind up to 70-m.p.h., uprooted trees and large hailstones fell in La Plata and Indian Head districts, with winds ripping off part of roof of church in La Plata. Lower Dorchester County hard hit by hail, and in small town of Robbins virtually every house had at least 1 window broken. Hailstones as large as golf balls leveled crops and smashed windows. 1 farmer reported that hail started at 4:50 p.m., and continued for 10 minutes. Farmer in Lakesville district reported his fields leveled,

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
MARYLAND (cont'd.)										with wheat and clover his main crops. Path of hailstorm narrow, varying from 1/2 to 1 mile. At Worcester High School near Snow Hill, hail broke out 325 windows.
MISSISSIPPI Newton (4 miles south-east of), Newton County	4	4:18 p.m.			0	0	1	1	Funnel aloft	First reported as tornado but no damage and later reports stated did not reach ground; moved northeastward.
TEXAS Cuero area, Dewitt County	4	5:20 p.m.	15	*7			4	4	Hail	Jagged hailstones size of hen and turkey eggs in some areas, over about 100-square mile area, damaged and destroyed crops, stripped foliage from fruit trees, injured livestock, and damaged roofs. 1 farmer said "storm came in from southwest, moved to west, then north and then to east; we were completely surrounded". Lasted about 30 minutes.
MARYLAND Indiantown area, (2 miles northwest of Snow Hill), Worcester County	4	7 p.m.	1-1/4 1-3/4		0	0	4		Tornadoes, hail, and wind	Pair of tornadoes described as "baby twisters" or "tornado-like twisters" cut parallel paths in southeastward direction and about 1 mile apart. 1 tornado started about 3 miles northwest of Snow Hill (1 mile north of Indiantown) and traveled southeastward for 1-1/4 miles. The other started about 3-1/4 miles north-northwest of Snow Hill (1-1/2 miles northeast of Indiantown) and traveled in southeasterly direction for about 1-3/4 miles. Roofs blown from several barns. 2 cows picked up and blown about 500 yards. 2 houses had sides bulged out on northeast side. Several windmills wrecked. Trees where twisters hit broken or twisted off mostly about 15 feet above ground. Debris mostly distributed in northwest-southeast direction, but some scattered in other directions. Telephone poles downed. Hailstones reported up to 1 inch in diameter in flat, clear shapes. Hail fell over estimated area of 10-square miles. Winds in some places carried hail underneath porch roofs with enough force to break windows.
MISSOURI Springfield, Greene County	4	7:42 p.m.							Funnels aloft	
	4									Minor storms also reported at Antonio and Marshall, Mo.; at Hermosa, S. Dak.; and at Nashville, Tenn.
ALABAMA Elmore County (extreme northwestern portion)	5	Afternoon						4	Hail	Considerable cotton had to be replanted. Hailstones up to 3/4 inch. Storm moved eastward.
GEORGIA Northwestern portion	5	5:29 p.m.			0	0	3	1	Funnel aloft and hail	Funnel cloud observed southeast of Rome. Hail reported in City and in other areas of northwestern Georgia, including Atlanta.
TENNESSEE Washington County	5						5	1	Rain and electrical	At Limestone, home struck by lightning burned to ground. At Clear Springs community, 100 chickens drowned by river overflow. At Jonesboro, flood waters up to 5 feet in depth damaged 20 business houses. At Johnson City, several residences flooded. In county, about 12 small bridges washed out; minor washouts along railroad tracks and several highways flooded.
	5									Minor storms also reported near Selma, Ala.; and near Andersonville, Tenn.
TENNESSEE Sullivan County	5-6						1		Rain	Recently seeded crops washed out and fields and roads inundated.
VIRGINIA Southwestern portion	5-6								Rain	Flash flooding in towns, flooded houses and basements and caused erosion of streets and highway shoulders in Wise, Scott, Clintwood, Dickenson, Buchanan, Washington, Russell, and Tazewell Counties. Damage in Bristol said to be in "thousands".
VIRGINIA Southeastern portion	5-7								Rain	Widespread flooding destroyed plantbeds and damaged truck crops on Eastern Shore, flooded basements, disrupted traffic, and clogged sewers in Newport News, Norfolk, Suffolk areas.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
GEORGIA Cook, Lowndes, and Chatham Counties	6	5-6 a.m.	4	*2			2	4	Hail, wind, and rain	Storm along line between Lowndes and Cook Counties. Most damage to tobacco and corn. Hail also re- ported south of Savannah on same day. Storm moved east-northeastward.
SOUTH CAROLINA Aiken, Aiken County	6	11:45 a.m.					0	0	Funnels aloft and hail	Funnel clouds aloft moving northeastward seen by many persons. Short-lived, scattered hail over considerable area.
GEORGIA Augusta (10 miles south of), Richmond County	6	12:20 p.m.			0	0	1	1	Funnel aloft	
FLORIDA Daytona Beach, Volusia County	6	2:30 p.m.			0	0			Waterspout	Waterspout reported 10 miles northeast of Airport.
SOUTH CAROLINA Walterboro (5 miles west of), Colleton County	6	3-4 p.m.	1/4	300	0	1	3	2	Tornado	Tornado moved north-northeastward.
SOUTH CAROLINA St. George (near), Dor- chester County	6	3:30 p.m.	1/4	100	0	0	2	1	Tornado	Tornado moved north-northeastward.
TENNESSEE Rutledge (near), Grainger County	6	P.m.		1760			1		Hail	Hailstones as large as golf balls severely damaged gardens and strawberry patches.
	6									Minor storms also reported at Jerome and Wendell, Idaho; in Harnett County, N. C.; at Bamberg, S. C.; and at Greenville, Tenn.
	6-7									Minor storm reported near Winner, S. Dak.
COLORADO Logan County	7	12:05 a.m.			0	0			Tornado	Funnel cloud touched ground 41 miles north- northeast of Akron, near Fleming; moved northwestward.
COLORADO Northeastern portion	7	Afternoon					5	5	Hail, rain, and wind	One to 3 inches of rain fell in parts of Larimer, Weld, Adams, and Denver Counties, causing some local flooding. Heavy hail and wind accompanied storm at some locations. Power and communication lines put out of order. Hailstones from 1/2 to 1 inch in size and covered ground from 2 to 4 inches in depth. 1,200 acres of beets damaged at Greeley, heavy loss of beets and other crops in adjacent areas. Storm moved southeastward.
NORTH CAROLINA Anson County	7	3:30 p.m.			0	0	3	3	Wind, hail, and tornado (suspected)	Possible tornado said to have cut path through wooded area, uprooting large trees and snapping off others. Warehouse and other outbuildings destroyed, some slight damage to dwellings. Wheat crop hurt by hail, des- cribed as "big as eggs."
	7									Minor storms also reported at Alda and Comstock, Neb.
	7-8									Minor storm reported in Pueblo area, Colo.
COLORADO Pueblo County	8	8:16 a.m.			0	0			Funnel aloft	Funnel cloud observed by pilot 8 miles west- southwest of Pueblo, receded into clouds after a minute.
TEXAS Haskell, Haskell County	8	8:30-8:45 p.m.			0	0			Tornado (suspected)	Occurred along dam at Stamford Lake.
TEXAS Throckmorton (near), Throckmorton County	8	9:45 p.m.			0	0			Tornado (suspected)	Occurred in Paint Creek area.
TEXAS Chillicothe, Hardeman County	8	10:30 p.m.			0	0			Funnels aloft	2 funnels moved northward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
OKLAHOMA Jackson and Kiowa Counties	8	P.m.							Rain and hail	From 5 to 7 inches of rain and damaging hailstorm with large stones from Hess to Humphreys and just northeast of Snyder in Kiowa County caused heavy damage to crops in area.
	8									Minor storms also reported in Pawnee County, Kans.; and at El Paso, Tex.
NEW MEXICO Curry (north- ern portion) and Quay (southern Portion) Counties	9	3 p.m.	30	*5					Hail	Hailstones 1/4 to 1-1/2 inches in diameter. Damage to wheat fields ranged from 5 to 100 percent.
TENNESSEE Carter County	9	P.m.						1	Wind and rain	Wind from severe thunderstorm partially unroofed large barn, allowing rain damage to fertilizer and seed within. Phone lines damaged by falling trees and poles.
TENNESSEE Memphis, Shelby County	9							1	Rain	Heavy rain resulted in flooding in southeast Memphis along Nonconnah Creek. 50 families forced to leave their homes.
	9									Minor storm also reported in Clayton area, N. Mex.
IOWA Klemme, Hancock County	10	Forenoon				3	2	1	Wind	Damaged building under construction, injuring 3 workmen.
ALABAMA Jefferson County	10	4:10 p.m.	12						Hail	Hail began just west of Hueytown and moved through Concord and Pratt City. Hailstones mostly pea size, and ranging up to 1 inch in diameter in Concord and Pratt City areas. Little noticeable property damage, but unseen damage may be considerable.
TEXAS Boys Ranch Oldham County	10	4:10-4:35 p.m.							Hail	Hail size of oranges.
ALABAMA Fayette and Lamar Counties	10	Afternoon					2		Hail	8 miles west of Fayette, hailstones reported up to 1-1/2 inches in diameter.
TENNESSEE Jonesboro (near) and Lamar, Washington County	10	P.m.						1	Hail, wind, and rain	Near Jonesboro, hail, wind, and flash floods did considerable damage to tobacco beds, alfalfa, small grain, and fruits. At Lamar, several windows broken by hail or blown out.
	10									Minor storms also reported at Nashville, Tenn.; and between Coleman and Santa Anna, and at Fort McKavett, Tex.
OREGON Central Columbia Basin, Union County, and scattered other areas	10-11	Afternoon					4	4	Hail and rain	Heavy hail over approximately 4-square miles in Union County damaged hay, grain, and fruit. Heavy rains in Columbia Basin caused field erosion and slight damage to farm roads. Damage by hail \$30,000; by rain \$5,000. Storm moved eastward.
CALIFORNIA Siskiyou Mountains, Cascade- Sierras, southern mountains, northeastern areas, and San Joaquin Valley	10-11								Electrical, wind, hail, and rain	Widespread thunderstorms. At Bonita, San Diego County, 0.40 inch of rain fell in about 20 minutes during heavy shower on 11th.
MISSOURI Malden, Dunklin County	11	11 a.m.							Funnel aloft	Funnel cloud moving east-northeastward dipped out of cloud briefly, but apparently did not touch ground.
FLORIDA Tampa area, Hillsborough County	11	11:12 a.m.			0	0			Waterspout	Waterspout over Gulf of Mexico
ARIZONA Paulden (8 miles north- west of), Yavapai County	11	10:30 a.m.			0	0	1	1	Tornado	Funnel cloud moving northward touched ground in open country.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
ARIZONA Scottsdale, Maricopa County	11	2 p.m.	3/8	100	0	0	3	1	Dust devil	Dust devil moving north-northeastward tore shingles from roofs and unroofed new carport.
TENNESSEE Friendsville to Unitia, Blount and Loudon Counties	11	4:30 p.m.							Wind and hail	Hail which covered fields and drifted to 5 or 6 inches did heavy damage to foliage. Wind blew portion of roof off barn and downed several trees.
ALABAMA Mobile (near), Mobile County	11	Afternoon				2	1	1	Electrical	2 persons hospitalized after shocks by lightning. 1 was in boat fishing when lightning hit tree. The other was fishing on dock when lightning hit water.
UTAH Northwestern portion	11	Afternoon				3	3	2	Wind	Winds estimated up to 70 m.p.h., hit local areas of northwest, causing damage to some trees, powerlines, automobiles, and buildings.
TEXAS Midland, Mid- land County	11	6:26-6:43 p.m.					4		Wind, rain, and hail	Winds to 75 m.p.h. Heavy rain (1.34 inches in 25 minutes) caused minor flooding of some homes and businesses. Scattered hail damage to foliage. Ground white with hail to 1/2 inch diameter. Trees stripped of leaves and vegetation damaged. Storm moved southwestward.
IDAHO Southwestern counties	11	6:30 p.m.						2	Rain	Cloudburst caused breaks in 5 irrigation canals, flooding basements and washing out 8 road crossings in Marsing-Homedale area. Big Wood River in Blaine County over its banks between Bellevue and Broadford. Unusual 1-day rainfall amounts ranged from about 1-1/4 to 2-1/4 inches in area between Marsing and Hailey. Storm moved north-eastward.
FLORIDA Central portion	11	During day			3				Wind, rain, and hail	Numerous thundersqualls accompanied by very strong, local winds, heavy rain and some hail moved across State from west to east during day. 2 persons drowned in Gulf of Mexico, 1 drowned in Lake Okeechobee when fishing boats capsized, several other persons rescued. Strong winds also capsized about 20 sail boats during boat race near Eau Gallie, but no lives lost. Winds reached 60 to 70 m.p.h., in gusts.
TEXAS Pecos (5 miles west of), Reeves County	11	9:25 p.m.					4		Electrical	Lightning hit screen of drive-in theater, total destruction by fire of theater and operator's apartment. Storm moved southwestward.
TEXAS Idalou (north of), Lubbock County	11	10:10 p.m.			0	0			Funnel aloft	Pilot reported funnel aloft.
TEXAS Littlefield (15 miles southwest of), Lamb County	11	11:25 p.m.			0	0			Tornado (sus- pected) and funnel aloft	Moved northeastward.
TEXAS New Deal, Lubbock County	11	Night	2	300			2	3	Hail	Hailstones described as huge as baseballs, penetrated sheetmetal roofs. Storm moved southwestward.
	11									Minor storm also reported at Cavecreek, Ariz.
TEXAS Lubbock (18 miles south- west of), Terry and Lynn Counties	11-12	Midnight			0	0			Funnel aloft	
TEXAS Reese Air Force Base (west-north- west of), Lubbock County	12	12:04 a.m.			0	0			Funnel aloft	
TEXAS Sundown, Hockley County	12	12:12 a.m.			0	0			Funnel aloft	
TEXAS Friona (10 miles south- east of), Parmer County	12	12:30 a.m.	2-3	*1/2- 1				4	Hail	Hail heavy over 200 acres, scattered over 8,000 acres. Storm moved north-northwestward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
OKLAHOMA Turpin, Beaver County	12	1 a.m.					4	1	Electrical	Lightning caused fire which destroyed garage.
TEXAS Between Ralls and Crosbyton, Crosby County	12	2:11 a.m.			0	0			Funnel aloft	Moved eastward.
SOUTH DAKOTA Eastern half	12	9 a.m. - 6 p.m.							Wind	Southerly winds reaching 50 m.p.h., in gusts, caused some soil erosion. Damage difficult to estimate.
VERMONT St. Albans to Milton, Franklin to Chittenden Counties	12	Early a.m.					2	1	Wind, and electrical	Gusts to 92 m.p.h., clocked at St. Albans Air Force Base. Damage confined to utility lines.
SOUTH DAKOTA Sanborn and Davison Counties	12	12:15-1:45 p.m.					4	4	Wind, hail, and electrical	Small farm buildings destroyed by wind in strip 3 to 5 miles wide and 13 miles long centered about 5 miles east of Woonsocket. Lightning damaged barn 3 miles southeast of Forestburg. Walnut-sized hail accompanied wind in Sanborn County. In Davison, at Mitchell, gusts broke large plate-glass windows. Storm moved north- eastward.
TEXAS Cotton Center (3 miles south- east of), Hale County	12	1:05 p.m.			0	0			Funnel aloft	
SOUTH DAKOTA Spencer (1 mile south- west of), McCook County	12	2:20 p.m.			0	0	3		Tornado (suspected)	Small farm buildings destroyed. 3/4 mile stretch of powerline poles demolished, 18 others bent over. Reported as a "twister", but ob- servers did not report seeing funnel. May have been a very strong localized thunderstorm gust. Storm moved northward.
ALABAMA Dale and Henry Counties	12	Afternoon		18			2	5	Hail and rain	Hailstones size of marbles, from north of Slocomb to Newville. Heaviest in Taylor commu- nity. Loss from hail was much more than offset by benefit of accompanying rain which was badly needed. Storm moved northeastward.
FLORIDA LaBelle (25 miles north of), Hendry County	12	Afternoon			0	0			Funnel aloft	
KANSAS Rawlins County	12	Afternoon							Hail	Numerous crop insurance losses paid for hail damage over northern part of county.
NEBRASKA Gordon, Sheridan County	12	4:40-5 p.m.	7	*1-2			3	3	Hail	Hailstones 1 to 1-1/4 inches in diameter. Ground covered 2 to 3 inches in center. Storm moved southeastward.
TEXAS Hale, Donley, Hockley and Lubbock Counties	12	5 p.m.	300	*60	0	0	4	5	Wind, tornado, rain, and hail	Strong winds and heavy rains from 6 to 10 p.m., caused scattered damage through Panhandle and west, accompanied by hail. Tornado struck 1 farm home near Sundown; strong winds destroyed 1 home at Wolforth near Lubbock, blew down powerlines and broke windows at Plainview. At Clarendon, center of storm, several business places flooded. Official 5.71 inches of rain during 4-hour period. Storm moved northwest- ward.
UTAH Hurricane- LaVerkin area, Washington County	12	5 p.m.	15	*4-5			3	5	Wind and hail	Hailstones up to 1-1/4 inches in diameter covered ground to depth of 2 inches, destroy- ing crops over 75-square miles; barn blown down and 35 turkey poultts killed. Storm moved northeastward.
COLORADO Evans (2 miles east of), Weld County	12	5:30 p.m.			0	0	2		Tornado	Tornado damaged 4 sheds on dairy farm; moved northward.
TEXAS Clarendon, Donley County	12	6 p.m.			0	0			Funnel aloft and wind	

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KANSAS Marienthal (north of), Wichita County	12	Daytime			1				Electrical	Man killed by lightning while operating tractor.
TEXAS Muleshoe (south of), Bailey County	12	8-9 p.m.	10	*5				4	Hail and rain	Damaged or destroyed 75 percent of wheat and cotton, requiring replanting; fields badly eroded following heavy rains. Accompanying high winds. Storm moved eastward.
KANSAS Logan County	12	Night	30	*2			2	5	Hail	Hail with stones from 1/2 to 1 inch destroyed crops over 90-square miles from near Russel Springs northeastward to Monument. Storm moved northeastward.
TENNESSEE Altamont and vicinity, Grundy County	12	P.m.				1		1	Electrical	Lightning struck 3 homes, doing considerable damage to 1 and slightly injuring 1 person.
	12									Minor storms also reported at Crookston and Grand Forks, Minn.; near Trenton, Nebr.; in Tatum area, N. Mex.; near Bryant, S. Dak.; and at Seagraves, Tex.
SOUTH DAKOTA North-central counties	12-13	8 p.m. - 1 a.m.					4	5	Rain, hail, and electrical	Local areas of very heavy rain washed out roads and crops. Unofficial reports of 5 inches west and northwest of Gettysburg, 5 inches 10 to 15 miles south of Eureka, and over 3 inches near Pollock. Lightning burst chimney apart at Ipswich.
SOUTH DAKOTA Cresbard (near), Faulk County	13	2 p.m.							Funnel aloft	
NEBRASKA Bassett, (20 miles north of), Rock County	13	2:30 p.m.			0	0	1	1	Funnel aloft	
COLORADO Northeastern portion	13	Afternoon					5	3	Hail and rain	Series of thunderstorms accompanied by hail and heavy rain did heavy damage in parts of Washington, Kit Carson, Logan, Morgan, Weld, and Larimer Counties. Hail, some of golf-ball size damaged roofs, windows, and crops. Local flooding added to damage.
COLORADO Yuma County	13	5- 7:25 p.m.			0	0	2		Tornado and funnels aloft	2 funnel clouds observed east of Akron; 1 at 5 p.m., 22 miles east of Akron, the other at 7:25 p.m., 29 miles east of Akron, which hit farm, but damage not serious. Several small funnels observed with storm near Yuma.
KANSAS Cheyenne and Sherman Counties	13	5-8 p.m.			0	0		4	Hail and funnel aloft	Spotted hail damage reported over western parts of counties. Stones ranged in size from tapioca to marbles. Damage not excessive, but a number of crop insurance losses paid. Most severe hail damage was in area 3 by 6 miles just north of Kanorado, Sherman County. About 7 p.m., small funnel observed to drop from clouds; traveled almost northward toward St. Francis for a few minutes and then disappeared.
FLORIDA Tampa area, Hillsborough County	13	5:35 p.m.			0	0			Waterspout	Waterspout observed over Gulf of Mexico.
NEW MEXICO Curry County (northwestern portion)	13	6:35 p.m.			0	0	1	1	Tornadoes	4 funnels moving northeastward reported in area, dipping to ground several times but over open country so no damage.
SOUTH DAKOTA Burke (2 miles west of), Gregory County	13	Daytime				2			Electrical	Lightning struck rural school, causing skin burns on backs of 2 children sitting on metal-legged double seat.
	13									Minor storm also reported at Fergus Falls, Minn.
COLORADO Lower Arkansas Valley	13,14, 15	Afternoon of 13th- morning of 15th					5	5	Hail and rain	Heavy rain and hail. Town of Granada flooded from swollen Wolf Creek. Persons evacuated from their homes for a time. Damage to homes and furnishings heavy. Up to 4 inches of rain reported in Granada area.

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TEXAS Harlingen (north of), and Browns- ville (north of), Cameron County	14	11:30 a.m.			0	0			Funnels aloft	2 funnels sighted.
TEXAS McAllen (18 miles east of), Hidalgo County	14	11:30 a.m.			0	0			Funnel aloft	Moved northward.
TEXAS Bishop (10 miles south- east of), Kleberg County	14	12:40 p.m.			0	0			Funnel aloft	
NEBRASKA Hebron (5 to 6 miles south of), Thayer County	14	3:40 p.m.	Short	Narrow	0	0	1	1	Tornado	Touched ground in open field.
OKLAHOMA Gowen, Latimer County	14	6 p.m.	2	*1	0	0	4	2	Funnels aloft, wind, rain, hail	2 funnels aloft sighted just before joining together. Funnel presumably remained aloft as severe winds lashed area for nearly 1/2 hour. Extensive damage resulted to most homes and buildings in area. Heavy rain fell and ground covered with small hail. Storm moved northeastward.
MISSOURI Jackson County	14	6-6:10 p.m.							Hail	Hail 3/4 inch in diameter just north of Kan- sas City.
KANSAS Greeley, Wichita, Hamilton, and Kearney Counties	14	6-7 p.m.						5	Hail	Several hail areas ranging up to 3 miles wide and 12 miles long reported over southern Greeley, northern Hamilton, southwestern Wichita, and northern Kearney Counties. Small hail 1/8 to 1/4 inch in diameter was driven by strong winds. Ground covered in some places 2 inches deep. Storm moved southeastward.
MISSOURI St. Joseph, Buchanan County	14	Evening				2			Electrical	2 men hit by lightning.
	14									Minor storms also reported in Bent County, Colo.; at Riverton, Iowa; and at Dodge City, Kans.
	14-15									Minor storm reported at Marlow, Okla.
TEXAS Lake Travis, Burnet County	15	Afternoon	300	*20		2	4		Wind	During squall line, strong winds destroyed floating boat dock, crushed 1 boat and dam- aged 9 others. Storm moved northward.
INDIANA Rockville, Parke County	15	4 p.m.					3	1	Wind and rain	Severe thunderstorm with winds of 110 m.p.h., and 0.83 inch of rain in 15 minutes blew down television antenna and trees which crushed a car. 2 houses damaged.
NEW MEXICO Dona Ana County (cen- tral portion)	15	4 p.m.	12	*4			1	4	Hail	Principal damage to cotton, but some loss of lettuce. Storm moved west-southwestward.
TEXAS Fort Sherman (near), Gray- son County	15	4:30 p.m.			0	0			Funnel aloft.	
TEXAS Booker (north- west of), Ochiltree County	15	6:10 p.m.			0	0			Funnel aloft	
	15									Minor storms also reported at Brookfield and Wayland, Mo.; and at Dyersburg, Tenn.
COLORADO Kiowa County	15-16	P.m.-a.m.					3	3	Rain	Flash rainstorm in vicinity of Eads, flooded lowlands in area, damaging homes, roads, and crops.
TEXAS Snyder (13 miles north of), Scurry County	16	10:30- 10:50 a.m.	1/2	10	0	0	1		Tornado	Touched ground briefly in open country, moved westward, then eastward.

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OKLAHOMA Carnegie, Caddo County	16	10:48 a.m.			0	0	1	1	Tornado	Weather Bureau's Substation Observer reported sighting funnel moving northward in and out of clouds and touching ground momentarily. Funnel was in sight about 15 minutes.
TEXAS Sweetwater (10 miles northwest of), Scurry and Fisher Counties	16	11:34 a.m.			0	0			Funnel aloft	
MISSOURI Libertyville (near), St. Francois County	16	Noon							Hail, wind, and rain	Severe hail, wind, and 3.50 inches of rain in an hour. Heavy crop damage.
KANSAS Wallace and Greely Counties	16	12-2 p.m.	8	*4				4	Hail	Hail damaged strip along Wallace-Greeley County line. Storm moved eastward.
KANSAS Norton (north- west of), Norton County	16	12-12:15 p.m.			0	0			Funnel aloft	Funnel cloud aloft observed for a few minutes moving northeastward.
NEBRASKA Kenesaw (4 miles west of), Adams County	16	12:42 p.m.	Short	Narrow	0	0	1	1	Tornado	Reported over open field.
NEW MEXICO Truth or Consequences (southwest of), Sierra County	16	2 p.m.	1/4	880	0	0	1	1	Tornado	Funnel touched ground 3 times, remaining down for 10 minutes at one time. Moved eastward over open country.
ALASKA Fairbanks	16	2:15 p.m.	** 150	25	0	0	2	1	Tornado	Strong, very localized circulation removed sign 4 feet high and 80 feet long, from roof and tossed it into nearby parking lot, damaging 1 automobile. Twister shortlived and spent its energy within a few minutes; moved north-northwestward. This storm is extremely noteworthy, although of relatively insignificant size and intensity, because of relatively few storms of this nature to develop in Alaska.
NEBRASKA Uehling (near), Dodge County	16	2:25-2:45 p.m.					2	2	Hail	Stones flat, up to 2 inches in diameter; most crops still too small to be vulnerable.
MISSOURI Vichy, Maries County	16	3 p.m.							Funnel aloft	Pilot reported funnel aloft south of Vichy Airport.
COLORADO Las Animas County	16	3:15 p.m.			0	0			Funnel aloft	Pilot reported funnel cloud (2 miles east of Kim) moving eastward.
INDIANA Starlight- Borden area, Clark County	16	4-4:15 p.m.	5	*5			2	4	Hail	Hail as large as silver dollars covered ground 3 inches deep, destroyed grain, and fruit crops. Paint beaten off 1 side of barn.
MISSOURI Springfield, Greene County	16	4:30 p.m.				1			Electrical	Man injured by lightning while driving earth-moving machinery.
SOUTH CAROLINE Cherokee County	16	4:30 p.m.							Hail	Damage to peaches.
KANSAS Jewell County	16	Late afternoon							Hail	Many wheat insurance claims paid for losses over much of county.
KANSAS Wichita, Scott, Lane, Finney, Ness, and Ellis Counties	16	Late after- noon- evening							Hail	Numerous wheat crop insurance claims paid in these counties. Apparently there was no extensive or extreme damage. Storm moved northeastward.
KANSAS Sabetha (8 miles northeast of), Brown County	16	5:30 p.m.			0	0			Funnel aloft	Small funnel cloud aloft reported.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Maryville, Nodaway County	16	7 p.m.							Funnels aloft	Moved northeastward.
MISSOURI Ravenwood, Nodaway County	16	Evening							Funnel aloft	
MISSOURI St. Joseph, Buchanan County	16								Rain	2.55 inches rain in 30 minutes. Much local flooding.
	16									Minor storms also reported in Russel County, Kans.; near Paducah, Ky.; at Carrollton, Richmond, and Rockport, Mo.; at Espanola and Rindoso, N. Mex.; and in Liberty community, Tenn.
TEXAS Amarillo (10 miles south- west of), Potter County	17	1:10 a.m.	1/4	20	0	0	1		Tornado	On ground for only a moment in open country.
WISCONSIN Wausaukee, Marinette County	17	2:20 p.m.	5	80	0	1	5	1	Tornado	Passed northeastward through village.
IOWA Bennett, Cedar County	17	Afternoon				1	1	1	Electrical	Lightning struck farmer.
IOWA Clinton and Scott Counties	17	Afternoon					4	1	Wind	Damaged utility lines, homes, automobiles, and trees.
VIRGINIA Roanoke area	17	Afternoon							Rain and hail	Flash flooding of Roanoke streets disrupted traffic and caused minor damage. Highway fill washed out in vicinity and minor hail damage in Salem Area.
OKLAHOMA Wewoka (6 miles south- west of), Seminole County	17	4:02 p.m.			0	0	1	1	Funnel aloft	Pilot reported tornado on ground. Police checked and sighted what was believed to have been funnel aloft, but found no further evidence of occurrence.
NORTH CAROLINA Forsyth County	17	6-9 p.m.					3		Wind	Thunderstorm in connection with front caused wind gusts up to 67 m.p.h., at Winston-Salem Airport. Scattered minor damage in city to trees, plate-glass windows, signs, and communication lines.
OKLAHOMA Beaver (south of), Beaver County	17	6:25 p.m.			0	0	1	1	Funnel aloft	Funnel reported forming and dissipating, but not touching ground; moved south-southeastward.
TENNESSEE Pine Grove community, Sevier County	17							1	Hail	Hail covered ground to depth of 2 inches.
TEXAS Reeves County	17		10	*2				5	Hail and rain	In Pecos area, several thousand acres of cotton damaged, must be replanted. Weekend rains up to 10 inches reported between Saragosa and Hoban. Storm moved eastward.
	17									Minor storms also reported at Grundy Center and Mt. Pleasant, Iowa; at La Grange and Willmathsville, Mo.; and near Orum, Nebr.
LOUISIANA Orleans, St. Bernard, St. Tammany Parishes	17-18	11 p.m.- 9 a.m.						1	Rain	Rainstorm moved from St. Bernard Parish across eastern end of Orleans into St. Tammy Parish; amounts exceeding 13 inches reported; Bayou Liberty rose 12 feet in a few hours, flooding homes; local flooding damaged homes and businesses in Slidell and halted traffic for several hours. Storm moved northward.
LOUISIANA Chef Menteur, Orleans Parish	18	9 a.m.	Short	300			4	1	Wind	Squall blew in from lake across settlement on highway and out over lake again; 1 camp home destroyed and 5 others damaged. All went through hurricane Flossy unscathed. Storm moved westward.
TEXAS Corpus Christi (near), Nueces County	18	12:05 p.m.			0	0			Funnel aloft	Visible for 3 minutes.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Corpus Christi area, Nueces County	18	12:08- 12:11 p.m.			0	0			Funnels aloft	2 funnels sighted moving west-southwestward over southeastern part of Corpus Christi Bay.
IOWA Cleghorn, Cherokee County	18	1:30 p.m.			0	0	1	1	Dust devil	Did minor damage to farmyard.
TEXAS Port Neches (northeastern part), Jefferson County	18	4-5 p.m.			0	0			Funnel aloft	
OREGON Scattered over much of State	18	Afternoon					4	2	Electrical	Severe lightning in many areas of State started a number of small forest fires, all of which brought under control with little damage. Also struck power and telephone service installations, causing service interruptions and destroying some property; 2 or 3 homes and/or furnishings suffered small damage from lightning strikes.
VIRGINIA Lynchburg area	18	Afternoon							Rain	Heavy rain clogged sewers with mud deposited up to 1 foot deep in many streets.
VIRGINIA Front Royal area	18	5-5:10 p.m.							Rain, wind hail, and electrical	Power and communications knocked out; poles and many trees downed, blocking many roads; flash flooding of streets; extensive minor wind damage to buildings, including glass breakage.
MARYLAND Washington and Frederick Counties	18	5-6 p.m.	15- 20	880		1			Hail and wind	Violent hail and windstorm cut a swath of destruction through Sharpsburg-Boonsboro-Wolfsville area. Hailstones size of golf balls knocked down utility wires and smashed windows. All small villages at base of Smithburg mountain reported devastation to property, crops, trees, and shrubbery from hail, size of walnuts and in such large quantities that ground was white for hours. In Boonsboro, hundreds of windowpanes smashed by hailstones. Wind damage heaviest just north of Boonsboro and Keedysville where several farm buildings shattered. 60 to 70 panes of glass broken at Boonsboro High School, all on south side. Windows broken in many homes in Boonsboro area. Storm moved northeastward.
LOUISIANA Acadia Parish	18	5:13 p.m.			0	0	1	1	Funnel aloft	25 miles west of Lafayette.
LOUISIANA Calcasieu Parish	18	5:15 p.m.			0	0	1	1	Funnel aloft	8 miles east of Lake Charles; moved northeastward at about 25 m.p.h.
WYOMING Cheyenne, Laramie County	18	Late after- noon	5	2500			5		Hail	Most damage to roofs and valuable vegetation. Storm moved southwestward.
NEW YORK Northern and western portions	18	Afternoon -evening			0				Wind, hail, electrical, rain, and tornado (sus- pected)	Pre-cold frontal thunderstorms brought strong winds, hail, some lightning, and heavy rain. Winds up to 61 m.p.h., reported along with areas of hail up to 1-1/2 inches. Considerable damage from wind to shopping center at Norwich. Spring Lake, Port Byron, and Weedsport another area of considerable wind and hail damage. Hailstorm in town of Butler where local paper reported small tornado. Damage from this confined to barn 2-1/2 miles north of Savannah. News accounts lend credence to likelihood of tornado, but no official confirmation available other than news account from Walcott Lake Shore News of 22d. No other estimates of total damage available for this line of thunderstorms.
	18									Minor storms also reported at Fort Lyon and Las Animas, Colo.; in western Union County, Ky.; and at State College and Sunbury, Pa.
WASHINGTON Western portion	18-20								Electrical	Power and communications lines damaged by lightning. Several forest fires started and property in a few localities damaged by lightning.
LOUISIANA Vermilion Parish	19	2:08 p.m.			0	0	1	1	Funnel aloft	27 miles southwest of Lafayette.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
LOUISIANA Calcasieu Parish	19	2:53 p.m.			0	0	1	1	Funnel aloft	At Lake Charles.
MASSACHUSETTS Billerica, Middlesex County	19	3:45 p.m.			0	0	1	1	Funnels aloft	Observed about 4 miles southeast of Billerica. Funnels reported moving eastward. Second funnel seen about 10 seconds after first disappeared; believed not to be same one. Each of funnels lasted about 20 seconds. Base of parent cloud estimated at 3,000 feet; lower funnel reached about halfway to ground. Rotation observed in cloud.
VIRGINIA Lynchburg area	19	Afternoon						3	Rain, hail, and wind.	1 home badly damaged by wind, trees uprooted, and power disrupted; hail damaged barley and corn crops extensively near New London.
CONNECTICUT Central portion	19	3-4:30 p.m.					2	2	Electrical, rain, and hail	First generalized thunderstorm of 1958 caused minor damage in Waterbury and Hartford areas. Excessive precipitation of 0.40 inches in 10 minutes measured at Hartford with storm totals in affected areas near 1/2 inch. Some washouts and street flooding reported in Waterbury and Southington. Scattered power failures, mostly in Waterbury area. 2 large trees blown over in Hartford school yard, but fortunately pupils had left for the day. Some small hail reported, but damage to property very minor and crop damage limited to home gardens, was slight. Storm moved eastward.
	19									Minor storms also reported at Standish, Maine; and in northern Worcester and Middlesex Counties, Mass.
OREGON Mostly north- west quadrant	20	Afternoon	150	*30 -40		1	3	4	Thunderstorm accompanied by some heavy rain	Lightning caused light to moderate damage to utilities' services and installations, killed at least 1 calf, and caused injury to 1 person. Heavy rains accompanying storm in some areas caused limited field erosion. Damage by lightning \$3,500; by rain \$10,000. Storm moved eastward.
	20									Minor storms also reported at Joseph City, Ariz.; and at Pleasant Hill, Mo.
	20-21									Minor storm reported at Greenfield, Mass.
ILLINOIS Champaign, Champaign County	21	11:35 a.m.	Short		0	0			Dust devil	As it moved through a back yard, child's wagon picked up and tossed 15 feet against garage. Storm moved southeastward.
WYOMING Laramie (28 miles north- west of), Albany County	21	3:14 p.m.			1				Electrical	Lightning struck Mexican national employed as sheep herder, killing him immediately.
SOUTH DAKOTA Crandall (north of), Day County	21	7-8 p.m.					4	4	Hail and wind	Hail reached size of eggs and baseballs. Storm moved southeastward.
SOUTH DAKOTA Spink and Beadle Counties	21	7:30-8 p.m.					4	4	Hail and wind	Hail reached grapefruit size in eastern section of Redfield. Automobiles and buildings damaged. Smaller hail with high winds near Tulare. 2 inch diameter hail 2 miles east of Huron, may have been part of same storm. Storm moved southeastward.
MONTANA Rapelje (southeast of), Still- water County	22	2:30 p.m.	15	*3				4	Hail and wind	Hail to 1 inch in diameter caused about 10 percent damage to crops in area. Storm moved southeastward.
OHIO Circleville, Pickaway County	22	3:15 p.m.	10	30	0	3	5	1	Tornado	Occurred in connection with cold front passage. Passed east-northeastward over northern outskirts of Circleville and into countryside northeast of town. 7 trailers in trailer court overturned, being lifted and dropped within distance of 12 feet. Extensive damage to farm buildings just northeast of town, and slight damage also to farm just northwest.
KANSAS Seward County	22	3:34-4:30 p.m.	10	*8					Hail	Variable damage from wind-driven hail within radius of 5 miles of Liberal. Some wheat losses ran up to 20 percent west of town. Storm moved southwestward.
INDIANA Central portion	22	Afternoon				1	5	3	Wind, electri- cal, and hail	3 barns damaged near Akron and home 2 miles southwest of Milroy. At Wabash, powerlines and telephone lines put out of service. Fallen trees blocked streets. Kokomo had some hail and several homes and buildings damaged

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
INDIANA (cont'd.)										by lightning. Hail hit Noblesville. Near Rochester, lightning hit home, injuring occupant, and broke store windows. At Lake Shafer, 5-ton steel roof lifted from boat house. At Deedsville, Miami County, barn roofing blown away and tree crashed into house. Near Metea and Logansport, several buildings damaged by wind. Near Columbia City, elevator shed flattened. Lafayette, Jasonville, Royal Center, and other towns reported minor losses. Damages attributed to wind \$90,000, lightning \$10,000, and hail \$5,000.
OREGON Scattered over entire State	22	Afternoon				2	5	4	Hail, wind, rain, and electrical	Quite severe lightning storms, well distributed over entire State, accompanied in some areas by either heavy rain, high winds, or hail; sometimes by combination of all 3. Near Klamath Falls, hail damage quite extensive. Telephone and power utilities suffered service interruptions in large numbers and property damage in widely distributed areas. A few homes and farm buildings damaged by lightning, at least 4 head of livestock killed, and 2 persons injured. Winds further added to utilities trouble. Rains flattened some hay and grain. Damage by hail \$70,000; by lightning \$95,000; by wind \$9,000; by rain \$6,000. Storm moved eastward.
LOUISIANA Calcasieu Parish	22	4 p.m.			0	0	1	1	Tornado	5 miles west-southwest of Lake Charles; formed on surface and went aloft; looked like big dust devil.
WEST VIRGINIA Wood County	22	4:30- 5 p.m.				2		1	Electrical, wind, and rain	2 persons injured by flying pieces of broken window glass. Many roofs and other parts of buildings and residences damaged by high winds. Many streets and highways blocked by uprooted and damaged trees. Power and communication facilities disrupted. Storm moved eastward.
MISSOURI Calloway, Randolph, and Boone Counties	22	Late afternoon					6		Hail, rain, and wind	Active squall line passed through accompanied by hail, heavy rains, and gusty winds, estimated at 40 to 60 m.p.h. Many power-and phone lines and trees downed. Roofs and windows damaged by wind and hail. Storm moved southeastward.
COLORADO La Junta, Otero County	22	5 p.m.					3		Rain and hail	Rain of cloudburst proportions (over 2 inches in 90 minutes) flooded streets, underpasses, and basements. Hail whitened ground, but stones small and soft.
CALIFORNIA Tule Lake, Siskiyou County	22	6 p.m.	3	50	0	0	4		Tornado	Funnel alternately lifted and descended to ground from dark clouds, demolishing machine shed on 1 ranch and causing structural damage on 2 other ranches.
ILLINOIS Scattered areas	22	Entire day							Hail, electrical, and wind	Storms at Washburn during night, Moline at 7 to 8 a.m., Ottawa, Joliet, and Kankakee at 9 to 11 a.m., Loraine near noon, and Mt. Vernon area at 10 to 11 p.m. Most damage was not heavy and resulted from hail, lightning strokes, or wind gusts of 40 to 65 m.p.h.
COLORADO Western portion	22						3	3	Rain	Cloudburst in vicinity of Mt. Garfield caused flooding of some farms in Clifton area. Some flooding along Colorado and Gunnison Rivers.
	22									Minor storms also reported at Port Huron, Mich.; at Beaufort, Mo.; near Orafino, Nebr.; and at Amanda, South Solon, Washington Court House, and in Clark, Fairfield, Fayette, Madison, and Pickaway Counties, Ohio.
CALIFORNIA North of Santa Barbara, Bakersfield line	22-23						3		Electrical, rain, and hail	Storm persisting in Pacific from 15th, intensified and moved closer to coast on 22d, causing widespread thunderstorm and shower activity. Rains caused light damage to short cherry crop, damaged cut hay in fields, and caused minor damage to some vegetables. Showers and thunderstorms locally heavy on evening of 22d. At San Francisco, 2 heavy showers between 6 and 7 p.m., thunder and lightning accompanying second. 0.31 inch of rain fell in 5 minutes, the second greatest 5-minute amount of record of record since 1906; overtaxed storm drains, popped manhole covers, flooded streets, stalled cars, and caused some minor flooding of homes and stores. At Vallejo, 10-minute cloudburst, preceded by sharp thunder and lightning, flooded streets and caused minor flooding of several homes. At Lookout, Modoc County, violent hailstorm from 5:52 to 6 p.m., on 22d,

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
CALIFORNIA (cont'd.)										with 0.57 inch of rain in less than 10 minutes as measured in open-top gage. Hailstones measured 1 inch in diameter. Roofs of buildings damaged, windows broken, and crops damaged.
KANSAS Sumner and Cowley Counties	23	Early a.m.							Electrical	Lightning bolts caused excess electrical surges through lines at Wellington, setting off tornado-warning whistle at 3:37 a.m. About 5 a.m., lightning struck oil tank about 11 miles southwest of Winfield. 4 tanks burned, but none contained much oil.
LOUISIANA St. Charles Parish	23	2:40 p.m.			0	0	2	1	Waterspout	Reported at Narco on Mississippi River.
NORTH CAROLINA Caldwell County	23	Afternoon			1				Electrical	Man killed by lightning while installing water lines.
OREGON Snake River Basin and Western portions	23	Afternoon	40- 300	*15- 15			3	4	Electrical	Lightning damaged some farm buildings and contents, a few homes, utility installations, and started a number of small forest fires, 1 or 2 range fires, all of which controlled within a few hours.
OKLAHOMA Collinsville, Tulsa County	23	5 p.m.	3	*2			°3		Hail	Hail up to size of hens' eggs caused major damage to crops over 6-square mile area. Storm moved southeastward.
NEBRASKA Gordon and vicinity, Sheridan County	23	9 p.m.					5	3	Hail	Hailstones size of golf balls.
NEBRASKA Dunlap (near), Dawes County	23	Evening			0	0	2	3	Hail, wind, and tornado (suspected)	
NEBRASKA Kimball (north of), Kimball County	23		15	*1			2	4	Hail	
	23									Minor storms also reported at West Plains, Mo.; in Guilford and Rockingham Counties, N. C.; and near Kimball, S. Dak.
FLORIDA Dade, Broward, and Palm Beach Counties	23-24								Rain	Very heavy rain, especially in Dade, Broward, and Palm Beach County coastal areas, with 2-day totals of 8 to 12 inches, caused considerable local flooding and damaged vegetables remaining in fields. Agricultural losses somewhat minimized due to fact large portion of crops already harvested.
LOUISIANA St. Bernard Parish	24	5:30 a.m.			0	0	1	1	Waterspout	30 miles southeast of New Orleans.
MASSACHUSETTS Framingham, Middlesex County	24	11 a.m.			0	0	1	1	Dust devil	Observed in Musterfield area. Picked up dust and debris in whirling funnel which was about 100 feet high.
MINNESOTA Washington County	24	1:45 p.m.	17	50	0	2	5	1	Tornado	Funnel first observed 3 miles northeast of White Bear at 1:45 p.m. It moved southeastward, hopping and skipping, demolishing 5 barns and several outbuildings on 3 farms. At 2:06 p.m., it touched ground again 1 mile northeast of Lake Elmo, destroying partially built home and large barn. At this point 2 persons injured, woman working on house and driver of car which was picked up and deposited in ditch. Path continued through northern edge of Lakeland, crossing St. Croix River into Wisconsin through north Hudson. Along tornado path powerlines and trees twisted and downed. Witnesses described funnel as slender white column with tremendous air suction lifting buildings straight up where they seemed to explode.
OKLAHOMA Hollister (1 mile west of), Tillman County	24	2:30-3:30 p.m.	5	*3			2	5	Hail and rain	Heavy hail up to 1 inch in diameter caused total loss to wheat crop on 2,000 acres and 20 to 80 percent loss on another 2,000 acres. Driving rain came with hail. Storm moved southeastward.
WISCONSIN Hudson and Plum City Saint Croix and Pierce Counties	24	2:45 p.m.	50	50	0	5	5	1	Tornado	Moved southeastward from Minnesota.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
UTAH Murray, Salt Lake County	24	3 p.m.					4		Electrical	Barn struck by lightning; resulting fire destroyed building and contents.
OKLAHOMA Oklahoma City, Oklahoma County	24	3:10 p.m.	1	880	0	0	3	1	Tornado, rain, hail, and wind	Tornado struck small airport, causing damage to 3 planes, a hangar, and several outbuildings in area. Heavy rain, hail, and strong winds noted in the immediate surrounding area. Storm moved southeastward.
LOUISIANA Cameron Parish	24	Afternoon			0	0	1	1	Tornado (suspected)	In uninhabited area 35 miles southeast of Lake Charles.
LOUISIANA Cameron and Calcasieu Parishes	24	Afternoon	40		0	0	1	1	Tornado (suspected)	Reported near Johnson Bayou and Holmwood over mostly uninhabited lowlying land; moved north-eastward.
OREGON North-central portion	24	Afternoon	90 -100	*30 -50			5	5	Wind, hail, rain, and electrical	Relatively violent storm. At Tygh Valley, winds blew roof off of large lumber mill installation. At Madras, hail caused extensive damage to grain and alfalfa and to a large number of homes and business buildings in town. At Pelton Dam, mixture of rain and hail spoiled dedication ceremonies scheduled there. Elsewhere, grain shattered by hail over limited areas and hail combined with rain to flatten fields of other crops. Flash floods caused serious erosion in a number of fields and made necessary considerable maintenance work on farm roads and several highways. Damage by wind \$75,000; by lightning \$10,000; by hail \$145,000; by rain \$50,000. Storm moved eastward.
COLORADO Eastern portion	24	Afternoon -evening					3		Rain and hail	Heavy rain accompanied by hail in scattered areas, damaged homes and roads. Lafayette and Louisville north of Denver had estimated 2 inches of rainfall in 2 hours, which flooded basements. Approaches to several bridges cut through. Pilot reported golf-ball size hail in Colorado Springs area. At Pueblo in the early afternoon, heavy rain and 2 to 5-inch hail did considerable damage to homes, business places, powerlines, and vegetation in sections of Pueblo. Several units of Colorado Fuel and Iron Corporation forced to close down because of flooding.
OKLAHOMA Harper County (north- western portion)	24	5-7 p.m.	6	*4			2	5	Hail	Hail up to 2 inches in diameter covered ground, causing up to 100 percent loss of excellent grain crop. Storm moved southeastward.
LOUISIANA Cameron Parish	24	5:26 p.m.			0	0	1	1	Tornado (suspected)	In uninhabited area 30 miles east-southeast of Lake Charles.
KANSAS Kingman County	24	5:30-6 p.m.	5	1000			4	4	Hail	Storm moved southeastward with path of hail damage from 2 miles west of Willowdale to 2 miles southeast of town. Much of ground white with hailstones ranging in size from 1/2 to 1-1/2 inches. A few jagged chunks of ice, size of hens' eggs found.
TEXAS Borger (9 miles north- east of), Hutchinson County	24	6:20 p.m.			0	0			Funnel aloft and rain	Accompanying heavy rain shower.
OKLAHOMA Granite, Greer County	24	6:30 p.m.	5	*1			3	2	Wind, hail, and rain	Strong winds blew down concrete wall of building under construction, trees, and TV antennas. Hail up to 1 inch in diameter caused variable damage to gardens and crops. Storm moved southwestward.
WASHINGTON Entire State	24								Electrical and rain	Lightning damaged power-and communication lines in various localities of State. A few buildings in various localities damaged by lightning. Unusually heavy rain in Walla Walla area. Basements flooded and other property damaged when storm sewers overflowed.
	24									Minor storm also reported at Tulsa, Okla.
TEXAS Kress (3-1/2 miles south- west of), Swisher County	24-25	Midnight					4		Electrical	Lightning-caused fire destroyed 5-room brick home and all contents.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Deadwood, Lawrence County	25	3:15-3:35 p.m.					4		Hail and rain	Hailstones piled as deep as 5 to 8 inches and ranged in size up to 1-1/2 inches. Gutters and storm sewers blocked, forcing water into basements. Roofs damaged, and nearly all neon signs broken.
ALABAMA Morgan County	25	4 p.m.		50	0	1	4	1	Tornado and hail	Small tornado moved from back water into harbor at Decatur, where all damage was to boats and boathouses. Storm moved northeastward from harbor on across Tennessee River. A number of occupied boats near it were not capsized, while 2 boats in its path blown up hill a considerable distance from shore. Man in boathouse nearby said it sounded like freight train passing. Small hail accompanied storm. 17-year old girl blown from near boathouse out into water about 25 feet from shore and injured slightly.
TEXAS Midland (south of), Midland County	25	4 p.m.	10	*3			5	5	Wind, rain, and hail	1,500 acres of cotton, some twice-planted, washed out. Winds of tornadic force ripped part of roof from business building, destroyed out-building and damaged homes. 25x45-foot section of sheet iron hurled 200 feet, cut powerlines. Accompanying light hail.
NEBRASKA Kimball (10 miles south of), Kimball County	25	4-5:30 p.m.	17	* 3-1/2			2	6	Hail and wind	Destruction heavy to winter wheat crop, ranged up to 100 percent. Storm moved eastward.
NEBRASKA Stapleton and Arnold, Logan and Custer Counties	25	7-8 p.m.	20		0	0	4	3	Hail and tornado (suspected)	Possibly tornado in this storm. Hailstones size of golf balls. Storm moved east-south-eastward.
NEBRASKA Gosper County (central portion)	25	10:25- 10:50 p.m.	17	*1			3	5	Hail	Hailstones averaged 3/4 inch in diameter.
NEBRASKA Furnas and Gosper Counties	25	11-12 p.m.	15		0	0	3	3	Hail, wind, and tornado (suspected)	Possibly small tornado. Storm moved eastward.
NEBRASKA Mullen, Hooker County	25	Evening				1	2	1	Electrical	Woman injured, using telephone which was struck.
NEBRASKA Gates (3 miles east of), Custer County	25	Night			0	0	3	3	Hail, wind, and tornado (suspected)	Probably small tornado. Large tree blown down on hangar.
	25									Minor storms also reported at Alliance, near Gordon, and in Wood Lake area, Nebr.; in northern Colfax County, N. Mex.; and near Millboro, S. Dak.
KANSAS Saline County	26	3:30 a.m.							Wind	Minor damage to several Schilling Air Force Base hangars and lesser buildings. Windshields popped out of automobiles by rapid change in air pressure. Storm moved south-eastward.
MINNESOTA Eveleth and Virginia, St. Louis County	26	2:30 p.m.		2800	0	0	5		Hail and wind	Hailstones up to 2-1/2 inches in diameter damaged 25 airplanes, roofs, and siding on houses. Storm moved south-southeastward.
MINNESOTA Duluth, St. Louis County	26	3:30 p.m.	8		0	0	2	1	Tornado	Funnel cloud observed, moving east-northeastward. It touched ground only once, damaging garage.
MINNESOTA Duluth (30 miles north- east of), St. Louis County	26	3:30 p.m.			0	0	2	1	Tornado	2 observed funnels reported at Pequaywan Lake, 30 miles northeast of Duluth. 2 cabins damaged and trees uprooted. Water sucked out of lake. Storm moved southward.
MINNESOTA Martin County	26	4:30-5:30 p.m.	15	*4-5			3	4	Hail	Hail, 3/4 inch in diameter, damaged crops and killed turkeys. Hail covered portion of ground up to depth of 4 inches with largest stones egg sized. Storm moved southeastward.
MINNESOTA Faribault County	26	6 p.m.	Short		0	0	2	2	Tornado and hail	Funnel observed. Touched ground momentarily and destroyed house trailer and garage at Blue Earth. Light hail also reported in northern half of County. Storm moved southeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
IOWA Hancock and Cerro Gordo Counties	26	6:15-7:15 p.m.	35	*12			4	5	Hail, wind, and electrical	Damaged building, crops, and cars. Storm moved south-southeastward.
IOWA Monona and Harrison Counties	26	6:30-8:10 p.m.	50	*12		2	6	5	Hail	Damaged buildings, destroyed crops, killed live- stock, and downed utility lines. 2 persons injured when caught in field by storm. Storm moved south-southeastward.
	26									Minor storms also reported in Dubuque and Marshall Counties, Iowa.
OREGON Stateside	26-27	3 p.m. 26th- after- noon 27th				24	5	5	Electrical, wind, rains, and hail	Violent lightning over much of State killed several head livestock, struck loaded bus, in- juring 16 persons in Portland; 6 others slightly injured in Bend when tree under which they had taken refuge struck; started several small forest fires, none of which caused serious loss; caused considerable miscellaneous damage par- ticularly to power and telephone companies. At least 1 small home and 2 barns set afire and burned. Winds further added to difficulties of utilities as they whipped tree branches into lines or felled trees across them. Hail caused heavy losses in some orchards in Medford area. Heavy rains caused further erosion and in at least 2 towns caused minor damage as they exceeded capacity of local storm sewers and flooded several basements. Damage by light- ning \$85,000; by hail \$50,000; by wind \$5,000; by rain \$1,000. Storm moved eastward.
MISSOURI Bogard, Carroll County	27	1-1:10 p.m.					5		Wind and rain	Roof of school gymnasium damaged. Many trees and wires downed. Storm moved southeastward.
TEXAS Shallowater, Lubbock County	27	2:36 p.m.	10		0	0	1		Tornado	Remained on ground about 5 minutes in open field; moved southeastward.
TEXAS Lubbock (11 miles north- northwest of), Lubbock County	27	2:37 p.m.			0	0			Funnel aloft	
ILLINOIS Southwestern portion	27	4-7 p.m.							Wind and electrical	As storms moved southeastward from Belleville to Carbondale-Herrin area, mostly minor wind and lightning damage occurred in scattered areas.
MISSOURI Hardin, Ray County	27	Afternoon				1			Electrical	Man hit by lightning while driving tractor.
MISSOURI Cornelia, Johnson County	27	Afternoon							Hail	Hail golf-ball size.
TEXAS Inadale (north of), Scurry County	27	Afternoon	2	*1				4	Hail, rain, and wind	Several hundred acres of young cotton and feed, some grain and newly planted crops damaged or ruined. Up to 5 inches rain washed terraces and fields, accompanying heavy hail and wind.
MISSOURI Slater, Saline County	27	Mid-after- noon							Wind, rain, and hail	Brief gusty winds, heavy rain, and hail. Storm lasted about 10 minutes.
TEXAS Lockney (5-1/2 miles north of), Floyd County	27	Late after- noon	7	*3				5	Hail and rain	On 3 farms estimated 75 percent destruction of wheat crop, serious damage to cotton and onions. Hail drifted to 6 inches deep around farm buildings. Accompanying heavy rain.
MISSOURI Cape Girardeau, Cape Girardeau County	27	5:05-7:03 p.m.					5		Electrical, rain, and wind	Widespread thunderstorms. Lightning hit sporting goods store.
TEXAS Haskell, Haskell County	27	6-7 p.m.	6	*6			4	3	Wind and hail	Winds estimated at 75-80 m.p.h., uprooted trees, damaged 2 warehouses and lumber-yard shed, with heavy damage to contents. 1/2- to 3/4 inch hail damaged wheat in area, slight damage to 1 or 2 homes. 2.47 inches of rain in 45 minutes. Storm moved eastward.
TEXAS Fort Griffin (west of), Shackelford County	27	6-7 p.m.			0	0			Funnel aloft	

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Albany (northwest of), Shackelford County	27	6-7 p.m.			0	0			Funnel aloft	Lasted 4 or 5 minutes.
TEXAS Rule (south- west of), Haskell County	27	6:05 p.m.			0	0			Funnel aloft	
TEXAS Stamford area, Jones County	27	6:10 p.m.			0	0			Tornado (suspected)	
TEXAS Stamford (21 miles east of), Jones County	27	6:27 p.m.			0	0			Funnel aloft	
OKLAHOMA Vici, Dewey County	27	P.m.						1	Wind and electrical	Strong winds damaged and uprooted trees, twisted a granary, and lightning struck and burned a barn.
MISSOURI Clark County (east- ern portion)	27						5	5	Hail	Hail damage to soybeans and small grains.
WASHINGTON Entire State	27								Electrical	Lightning caused power and communication outtages in various localities of State.
	27									Minor storms also reported at Opp, Ala.; and at Hamilton, Jackson, and Slater, Mo.
TEXAS Atlanta, Cass County	28	6:40 a.m.		100	0	0	3		Tornado, wind, and electrical	Lifted and destroyed garage, ripped shingles from house, and knocked down trees. 1 house destroyed by fire, apparently from lightning which was "tremendous." Storm moved east-southeastward.
FLORIDA Miami, Dade County	28	8:56 a.m.			0	0			Waterspout	Waterspout observed off Miami shore.
FLORIDA West Palm Beach area, Palm Beach County	28	A.m.			0	0			Waterspouts and funnels aloft	6 waterspouts and funnel clouds reported off coast between West Palm Beach and Boynton Beach.
FLORIDA Ft. Myers area, Lee County	28	12:25 p.m.			0	0			Funnel aloft	Funnel cloud aloft over Pine Island about 15 miles west of Ft. Myers.
MISSISSIPPI Jackson (3 miles north of), Hinds County	28	1:40 p.m.			0	0	1	1	Funnel aloft	
VIRGINIA South-central portion	28	Afternoon							Wind, hail, and rains.	In Halifax County, wind blew down several trees, 1 falling across automobile, damaging it heavily. Hail damaged wheat and barley crops. In Pittsylvania County, hail destroyed tobacco plantbeds and a number of acres of wheat and barley. Wind uprooted trees, ripped roof from tobacco barn, and caused other scattered damage to buildings.
NEBRASKA Broadwater to Lodgepole, Morrill to Cheyenne Counties	28	4-6 p.m.	35	*2	0	0	3	3	Hail	Damage spotted. Hailstones 1-1/2 to 3 inches in diameter, but not very numerous. Storm moved south-southeastward.
TEXAS Waco (west of), McLennan County	28	6:25 p.m.			0	0			Funnel aloft	
TEXAS Bosque, McLennan and Robertson Counties	28	Night					3	4	Hail, electri- cal, and rain	Hail ruined cotton crop, must replant, about 4 miles east of West, accompanying 3 inches of rain. Corn and wheat damaged. Lightning-caused fire damaged home near Franklin and another 6 miles east of Clifton. Storm moved southeastward.
VIRGINIA Northeastern Tidewater section	28					1			Rain	Flash flooding disrupted traffic, caused several automobile accidents, damaged crops, and eroded highways.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NORTH CAROLINA Sampson County	28						4		Electrical and wind	Homes and powerlines hit by lightning, power interrupted. Homes damaged and outbuildings destroyed by wind.
	28									Minor storms also reported at Mobile, Ala.; in Adair County, Iowa; in Caddo Parish, La.; at West Plains, Mo.; and at El Reno, Okla.
FLORIDA Key West, Monroe County	29	2:47 p.m.			0	0			Waterspout	Waterspout 25 miles north-northeast of Key West.
MAINE Bangor, Penobscot County	29	Afternoon					4	3	Rain, hail, and electrical	Heavy, local thundershowers flooded cellars and streets; plants damaged by hail size of "large peas." Several sidewalks badly damaged by rushing waters. About 350 phones knocked out.
MONTANA Kolin (east of), to be- yond Ross Fork Creek, Fergus County	29	4:10 p.m.	3	*1				4	Hail	Heavy, pea-sized hail caused heavy crop damage in parts of 4 townships. Storm moved southeastward.
MONTANA Danvers (6 miles south- west of), Fergus County	29	4:15 p.m.	20	*2				3	Hail	Hailstones up to 2-1/2 inches in diameter struck crops to extent of 6 percent damage. Pock marks in soil from large hail visible 10 days later. Some livestock injured. Storm moved south-southeastward.
LOUISIANA Jefferson and Orleans Parishes	29	4:30 p.m.				1	4	1	Electrical, wind and hail	Lightning struck and critically injured boy in Jefferson Parish; lumber shed blown down and lumber scattered; many trees and some powerlines downed; hail reported in some sections.
TEXAS Amarillo (40 to 50 miles north of), Moore County	29	6:45 p.m.			0	0			Tornado (suspected)	Pilot reported tornado.
TEXAS Harris County	29	7 p.m.	1/2- 3/4	700 -1000	0	0	°3		Tornadoes	2 funnels sighted, 1 east of Barker caused damage 1 mile south of Barker, did not stay on ground long. Unroofed large barn, damaged house roof, other barns, and sheds. Cattle trailer yanked off truck, dropped in pond. Windows sucked from houses and rice crop damaged. Storm moved southeastward.
TEXAS Amarillo, Potter County	29	7:30-7:45 p.m.			0	0			Funnel aloft	Small funnel sighted over city.
NEBRASKA Imperial (20 miles north of), Chase County	29	8:15 p.m.	Short	Narrow	0	0	1	1	Funnel aloft	
KANSAS Mead, Clark, and Kiowa Counties	29								Hail	A number of losses paid on wheat insurance claims for occasional damage from hail over these counties.
	29									Minor storms also reported near Pratt and Russel, Kans.; at Joplin, Mo.; at Enid, Okla.; and at Philip and near Winner, S. Dak.
IDAHO Grangeville (southwest of), Idaho County	29-30								Hail	Hail heavily damaged fall wheat crop on Doumécq Plains on 29th and again on 30th. On afternoon of 30th, motorist on south side of Whitebird Hill reported mile strip of hailstones 4 to 5 inches deep.
NEBRASKA Fontanelle (4 miles east of), Washing- ton County	30	3 a.m.	1/8	150	0	0	2	1	Tornado	A few small farm buildings damaged, no damage to house or barn. Tornado moved northeastward.
IOWA Adair County	30	7 a.m.				1	4	1	Electrical	Burned house and farm buildings; burned after lightning strike; occupant cut by flying glass.
FLORIDA Wellborn, Suwanee County	30	Afternoon	2	*1					Hail	Hail fell about 30 minutes; some hailstones size of golf balls. Corn and tobacco fields damaged.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
UTAH West Corinne area, Box Elder County	30	4:30-5:10 p.m.	2	*5			2	5	Hail and wind	Hailstones up to marble size in diameter covered ground to maximum depth of 2 inches. Tomatoes, sugar beets, alfalfa, and grown crops severely damaged over 170-square mile area. A number of trees blown down and several small buildings unroofed. Storm moved north-northeastward.
NEBRASKA Crawford (5 miles south of), Dawes County	30	6 p.m.			0	0	2	2	Hail and tornado	Tornado touched briefly in open range. Hailstones up to 10 inches in circumference.
NORTH DAKOTA Esmond (6 miles south of), Benson County	30	8 p.m.	10		0	0	4	1	Tornado	Barn on 1 farm destroyed and machinery and buildings on another farm heavily damaged. Tornado moved northeastward.
	30									Minor storms also reported at Stanberry and Tarkio, Mo.
	30-31									Minor storms reported near Britton and at Herrold, S. Dak.
IOWA Sac, Calhoun, and Webster Counties	31	10-11 a.m.	70	*15	0	0	5	1	Wind, electri- cal, and funnel aloft	Destroyed church and damaged buildings and utilities. Funnel cloud aloft. Storm moved east-northeastward.
IOWA Black Hawk, Fayette, and Clayton Counties	31	12-1 p.m.	60	*12			4	1	Wind, hail, and electri- cal	Damaged buildings, cars, utilities. Storm moved east-northeastward.
IOWA Marshall to Dubuque Counties	31	12-2 p.m.	100	*20	0	1	4	1	Wind, electri- cal, and funnel aloft	Damaged buildings, cars, and utilities. Funnel cloud reported in Tama County. Storm moved east-northeastward.
IOWA Polk to Jas- per Counties	31	1-3 p.m.	80	*15	2		5	1	Wind and electrical	2 persons drowned when boat capsized in wind. Downtown building burned by lightning. Storm moved east-northeastward.
IOWA Muscatine and Scott Counties	31	2 p.m.	40	*10			5	3	Wind and rain	Buildings, boats, utilities, crops, and trees damaged. Storm moved east-northeastward.
WISCONSIN Darlington (8 miles north of), Lafay- ette County	31	2:30 p.m.	3		0	0	5	1	Tornado	Tornado moved northeastward.
IDAHO Minidoka and Cassia Counties	31	Afternoon	20	3		Sev- eral			Wind, rain, and hail	From Emerson-Heyburn area (southwest of Paul) to Minidoka Dam about one-third of grain crop destroyed. Sugar beets, beans, and hay also suffered much damage. Countless trees uprooted, smashing several buildings and pickup truck. Power and telephone lines broken. Roofs damaged by wind and hail, allowing rain to enter several homes and business buildings. Many persons caught in open suffered extensive bruising from hail which lasted 2 to 10 minutes at various places. Burley escaped with less damage than areas north of river, but hail began there about 3:15 p.m., and stripped leaves from flowers and vegetables. Civil Aeronautics Communications station at Burley reported 45 m.p.h., wind. Storm moved north-eastward.
IDAHO Canyon and Ada Counties	31	Afternoon							Wind, rain, and hail	Brief but vicious hailstorm swept across Deer Flat, Kuna, and Bowmont farmland, damaging grain, hay, beans, and corn to extent of "thousands of dollars". Heavy rains at same time flooded streets in Nampa, and a home in Deer Flat community damaged by water, which filled basement.
ILLINOIS Northern half	31	3:15-10 p.m.				2	5		Wind, rain, electrical, and hail	Numerous heavy thunderstorms affected most of area north and northwest of line from Quincy to Springfield to Kankakee. Many heavy showers and occasional lightning strikes, but not much hail. Wind broke a great number of trees and damaged utility lines in all parts of area; also scattered structural damage. Much damage from Rockford to Freeport and northward apparently was by west-southwest winds in pre-frontal storms. Later damage by northwest or north winds in cold fronts storms. 2 injuries near Freeport.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
WISCONSIN Monroe (5 miles south of), Green County	31	3:30 p.m.			0	0			Funnel aloft	
KANSAS Jefferson, Douglas, and Atchison Counties	31	6-7 p.m.						4	Hail and wind	Occasional swaths of hail from near Grantville and LeCompton northeastward across Jefferson County to southern Atchison County. Hail marble sized driven by high wind. Most damage in southwestern Jefferson County. East of Valley Falls, swirling mass lowered out of black cloud, but no funnel sighted.
MICHIGAN Southwestern portion	31	6-9 p.m.					° 4		Wind	Barn destroyed near Hastings, value \$10,000; other miscellaneous damage to buildings, crops, etc.
KANSAS Franklin County	31	6:45-7 p.m.			0	0	4	4	Tornadoes, hail, electrical, and funnel aloft	2 tornadoes caused damage in northeastern Franklin County. One began 2-1/2 miles southwest of LeLoup, damaging buildings on 2 farms over path 1 mile long. Second tornado appeared out of southeast and hit first at farm 8 miles east and 2 north of Ottawa, travelling northeastward about 4 miles before lifting. Path about 60 yards wide. Tornado made considerable roar. 4 farmsteads damaged and a number of utility lines downed. First tornado appeared to be larger, but was of shorter duration. Funnel cloud aloft also observed. Tornado damage estimated at \$20,000 to property. Hail of golf-ball size damaged crops to extent of \$30,000 over much the same area as second tornado.
INDIANA Michigan City, La Porte County	31	7:20 p.m.			0	0	5	1	Tornado and rain	Roof of 100 by 100 foot warehouse lifted and deposited in nearby lot. Contents damaged by rain amounted to \$140,000.
MICHIGAN Paw Paw Lake, Berrien County	31	7:45 p.m.	8		0	0	2		Tornado	Tornado moved east-northeastward aloft, most of time; damage limited to 1 summer cottage near lake.
INDIANA Rolling Prairie, La Porte County	31	8:20 p.m.	1		0	2	4	1	Tornado	Home destroyed and 2 persons injured 1/2 mile west of U. S. Highway 20 and Indiana Highway 2. 1/2 mile east of road intersection, outdoor movie screen blown over. Tornado moved eastward.
KANSAS Labette County	31	8:25 p.m.	1/4	100	0	0	4		Tornado, wind, and hail	Funnel cloud dropped out of sky 5-1/2 miles southeast of Parsons, destroyed 4-room house, garage, and brooder house. Slight damage to nearby house. Highway Patrolmen, 2-1/2 miles west saw funnel come to earth. Hail and wind caused damage to crops, trees, and utility lines over county. Storm moved northeastward.
MISSOURI Metz and Stotesbury, Vernon County	31	9 p.m.	4		0	0			Tornado (sus- pected), rain, and wind	3 sets of farm buildings damaged in line from southwest to northeast, but no path given between farms. 2 hogs killed, 2 missing, 1 house damaged, 2 barns lifted from foundation and turned. Main tornado evidence shown when steel granary lifted and carried off and found in pieces 3 miles away. Heavy rain and high winds throughout much of County at time.
MISSOURI Clarence, Shelby County	31	9 p.m.							Funnel aloft	Apparently did not touch ground.
MISSOURI Boone, Cooper, Audrain, and Howard Counties	31	9:30- 10:30 p.m.					5		Funnels aloft, hail, and wind	Very active thunderstorms, with many reports of hail and wind damage to trees, roofs, and power-and phone lines. Wind hit 72 m.p.h., at Columbia Airport at 9:55 p.m. Funnels aloft reported near Columbia and Fayette. Many reports of hail 1/2 to 1 inch in diameter.
MISSOURI Norborne, Carroll County	31	Evening					4		Wind, rain, and electrical	Several buildings damaged. Many lines downed.
MISSOURI Newtonia, Newton County	31	11:15 p.m.	10		0	0	5		Tornado	Funnel aloft had been sighted over Neosho before reaching ground at Newtonia. Tornado moved northeastward.
MISSOURI Lincoln County	31	11:30 p.m.- midnight			0	0	3		Wind and funnels aloft	Many trees uprooted, several roofs of buildings damaged. Some indication of funnels aloft. Witnesses reported hearing "roaring" sound.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MAY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Kansas City (5 miles southeast of), Jackson County	31	11:35 p.m.							Funnel aloft	Reported by pilot. Apparently did not touch ground.
MISSOURI St. Charles, St. Charles County	31	Before midnight					5		Wind	Heavy wind damage at St. Charles Fair Grounds and South Shore Yacht Club. Many powerlines downed.
MISSOURI Saline, Johnson, Lafayette, and Pettis Counties	31	P.m.					4		Wind, rain, hail, and electrical	4 miles southwest of Post Oak orchard reported severely damaged and outbuildings moved off foundations. Tree limbs damaged wires in Warrensburg, Concordia, Windsor, Leston, and Green Ridge.
MISSOURI Kahoka, Clark County	31	Night					4		Electrical and wind	Lightning and wind damage to farm buildings. Several cattle hit by lightning and killed.
MISSOURI St. Louis County	31	Midnight					5		Wind, hail, rain, and electrical	Many phone and powerlines downed. Numerous reports of damage to trees and roofs of houses.
WISCONSIN Southern portion	31						4		Wind	Scattered damage over southern counties.
	31									Minor storms also reported in Des Moines County, Iowa; at Columbus, Kans.; in extreme southeastern portion of Michigan; and at Butler, Bolter Island, Carl Junction, Cole Camp, Eldon, Higginsville, Jefferson City, Mountain Grove, Odessa, Olean, Richmond, Salisbury, and Sunrise Beach, Mo.
NORTH DAKOTA Entire State	During month						1	5	Wind and dust	High winds over State on several days during May caused over \$100,000 damage to fields and crops. Seeds blown out of ground and some sugar beet and small grain plants destroyed by wind. Winds most severe on 12th and 18th, when visibility lowered to 1/4 mile at times in northeast, due to blowing dust.
ILLINOIS Southwestern portion	May 31- June 1	11 p.m.- 1 a.m.					5		Wind	In area extending from East St. Louis some 50 miles east, northeast, and north there were numerous broken trees, damaged utility wires, and minor structural damage.

LATE REPORTS

VIRGINIA Lee County	April 24	3 p.m.							Wind, hail, and rains.	Hail caused considerable glass breakage in buildings and damaged crops. Killed 2 pigs and calf, damaged many automobile bodies and broke glass, porch and roof blown from home and many other buildings damaged by wind.
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* Miles instead of yards.

** Yards instead of miles.

° Includes crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

MAY 1958

Severe flooding occurred in streams in southern Arkansas, northern Louisiana, Mississippi, and eastern Texas during May. Stages on several streams in this area reached record to near record proportions. Many families in the flood area were forced from their homes. Serious flooding occurred in the headwaters of the Big Sandy River Basin in southwestern Virginia, eastern Kentucky, and southwestern West Virginia. Some of the highest stages in 10 to 18 years were reached on streams in eastern North Carolina forcing several families from their homes. Flooding reported elsewhere over continental United States was light to moderate.

Severe floods occurred in streams in the vicinity of Ponce, Puerto Rico, on the morning of May 7, causing 3 deaths and property damage of \$1,260,000. Copious rains fell over Puerto Rico on the 2d, 3d, 4th, and on the afternoon of the 6th, before the heavy thundershowers (in cloudburst proportions) broke out at 2 a.m. on the 7th. The rains were especially heavy over the south-central portion of the island north of Ponce, Villalba, and Juana Diaz, with 4.15 inches of precipitation reported in approximately 1 hour at Guineo Dam. The swollen streams went out of their banks by 4 a.m. on the 7th, inundating adjacent areas and sweeping houses, trees, and other objects before the crest of the flood. Much of the business section of Ponce and several urban areas were under 3 to 5 feet of water by 5 a.m. on the 7th. Many highways along the southern coast in the vicinity of Ponce were damaged. Nearly 150 houses were destroyed and 275 houses were severely damaged; over 3,000 families were evacuated from their homes.

ATLANTIC SLOPE DRAINAGE

Moderately heavy rain on the 4th, 5th, and 6th caused bankfull stage in the lower Potomac on the 7th near Washington, D. C. Near bankfull stages were reached on the 6th in the upper Potomac at Cumberland, Md., and in the Monocacy at Frederick, Md. No damages were reported.

Minor flooding occurred on the lower James River on the 7th and 8th from the heavy rains on the 5th and 6th. Near bankfull stages were reached at several upstream points. No damage resulted.

All rivers in eastern North Carolina were at high levels at the beginning of May due to frequent April rains. These rains continued practically every day during the first 8 days of May, with especially heavy rains on the 5th, 6th, and 7th. Some of the heaviest flooding in several years resulted. The crest of 29.2 feet on the Tar River at Tarboro, N. C., was the highest since 1940. Most of the 200 families of Princeville, just across the river from Tarboro had to be evacuated. The Neuse River reached the highest stages since 1948, at Goldsboro and Kinston. Several families had to be evacuated from the Happersville section of Kinston, on the lower bank of the river. Flooding on the Cape Fear River was sufficient to close navigation locks on the lower part of the river for several days. Minor flooding occurred on the upper Roanoke, and the accumulation over the past several months brought the water level in the John H. Kerr Dam to the highest level in its history. Flood damage was confined largely to crops, building, and other immovables. The single death attributed to flood waters occurred when a man wading in a flooded field near Tarboro fell in an unseen canal and drowned.

Minor flooding occurred on the Rocky River at

Norwood, N. C., on the 7th. The upper Pee Dee River crested at Cheraw, S. C., on April 29 at a stage of 37.4 feet, 7.4 feet above flood stage. It was back within its banks on the 2d. The crest reached Peedee, S. C., on the 5th at a stage of 24.3 feet, 5.3 feet above flood stage. This was slightly less than the December 1957 crest, which was the highest since January 1954. Moderate to heavy rains at the end of the first week caused another rise to 0.6 foot above flood stage on the 8th at Cheraw, S. C., and prolonged the flood downstream at Peedee to the 17th. The channel was filled with considerable debris that had to be removed from against the bridge piers. Otherwise no damage was reported. The Edisto Basin continued high during the first half of the month. The North Fork at Orangeburg, S. C., crested near 9.6 feet on the 1st, the highest stage since August 1949. It has been in flood or near flood since November 1957. Downstream at Girhans Ferry, S. C., where it was in flood most of April, it rose to slightly above flood stage between the 7th and 9th. No damage resulted.

The flooding on the Saluda and Broad Rivers which began on April 29 was prolonged by the frequent rains during the first week of May. Rainfall during that period totaled between 1 and 2 inches. Flooding along the Broad River continued through the 4th, with a brief rise to bankfull stage on the 8th. The Saluda River continued in flood at Pelzer, S. C., until the 5th with a brief rise to bankfull stage on the 10th. Flood stage was exceeded slightly at Chappells, S. C., on the 7th. No significant damage was reported.

The Savannah River exceeded bankfull stage at Burton's Ferry, Ga., on the 6th. Downstream at Clio, Ga., there were two crests; one on the 10th-11th and the other on the 17th-18th. The first crest was 2.4 feet above flood stage and the other 2.2 feet above flood stage. No damage was reported.

The light flooding in the Satilla and upper Altamaha Rivers in Georgia was due to moderate to heavy rains during the latter part of April. No damages resulted.

EAST GULF OF MEXICO DRAINAGE

An intense local flood occurred on the Conasauga River near Tennega, Ga., from the excessively heavy rainfall during the latter part of April. This flood was about equal to the flood of March 1951, which was the highest of record. This flood resulted in a high flow in the Oostanaula River, with bankfull stage being slightly exceeded at Resaca, Ga., on May 2.

Extensive damage occurred along the Tombigbee River in Mississippi and Alabama from the heavy rains, which began on April 26 and continued intermittently through May 2. These rains were followed by additional heavy rains on the 5th and 6th and again on the 11th and 12th. The extensive damage was due to the inundation of lowlands along the rivers, which had been planted to crops. There was no dangerously high water at any station, and a flood of this type would have caused little concern in the winter.

The heavy rains during the latter part of April and early May produced a major flood on the Pearl River in Mississippi and Louisiana early in May. Precipitation averaged 5.25 inches above Edinburg, Miss., and 5.17 inches above Jackson, Miss., prior to the May 5-6 storm, which added 1.5 to 3.5 inches of precipitation to the drainage area above

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

MAY 1958

Jackson, Miss. It was this last storm that produced the runoff necessary to make this a major flood at Jackson. The 34.2-foot crest at Jackson was the 6th highest crest since the record crest of 37.2 feet in 1902. Serious flooding of timber, pasture, and agricultural areas occurred downstream to the coast. Substantially greater crests have occurred in previous downstream floods when accompanied by similar heavy rains in local areas. Much less local downstream runoff occurred in the May 1958 flood, except near Pearl River, La. Several persons in the Jackson area were evacuated from their homes when the Pearl River level neared the 32-foot mark.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The mean stage of the Mississippi River at Fort Ripley, Minn., for May was 3.6 feet. This is the lowest mean stage recorded at this point since 1931, when a mean stage of 3.6 feet was recorded. At Minneapolis, Minn., the mean stage of 4.5 feet was the lowest mean stage recorded at this point since records began in 1938. At La Crosse, Wis., the mean stage of 4.8 feet was the lowest recorded since the locks and dams were put in operation in 1937. At Portage, Wis., on the Wisconsin River, a mean stage of 10.2 feet was recorded, which was 0.9 foot below the longterm mean, and the lowest since 1934 when a mean stage of 9.7 feet was recorded.

The moderate to heavy rains from the 2d to the 5th caused local overflows on the Sangamon River at Riverton, Ill., and on the Kaskaskia River at Carlyle, Ill. Flood damage was limited to grains and crops planted in low marginal lands.

Missouri Basin.--Heavy flooding occurred in the lower reaches of the Sabine River, where an overflow of 4 to 5 feet moved downstream from the 17th to the 22d. There was considerable inundation of river bottom cropland in the area west of Lincoln, Kans., to the mouth of the stream. Locally light to moderate overflows occurred on the Solomon and lower Republican Rivers and on Potlawatomie Creek in the Marais des Cygnes Basin in Kansas during May. There was light local flooding on the Osage at Shell City, Mo., on the 7th. Losses were comparatively minor, except in the lower Sabine Basin where most areas escaped intensive damage since the duration of the overflow was 24 to 36 hours in most cases.

Ohio Basin.--The light flooding on the lower Monongahela River in Pennsylvania on the 6th was due to moderate to heavy precipitation (1.25 to 3.1 inches) on the 4th and 5th. Flood damage was minor. Navigation was suspended on the Monongahela River, due to water overtopping lock walls.

Serious flooding developed in the headwaters of the Big Sandy River Basin in southwestern Virginia, eastern Kentucky, and southern West Virginia from the heavy rains which began during the night of the 5th and 6th. The rainfall continued heavy during the day of the 6th and the early part of the night. In the vicinity of Mouthcard, Ky., on the Levisa Fork of the Big Sandy River all of the bridges on Shelby, Big Card, and Little Card Creeks were washed away. There was severe flooding on the Levisa Fork from Fishtrap, Ky., downstream past Pikeville, Ky., for several miles. There was considerable flooding at Prestonsburg, Ky., where one section of the business district was inundated up to 4.5 feet with homes and business places flooded. At Paintsville, Ky., 120 families were moved by the local Civil Defense group. There was little or no damage in

the river valley below Paintsville, Ky. There was serious flooding also along the Tug Fork of the Big Sandy River at Matewan and Williamson, W. Va., where the crest stage was within 1 inch of the crest of the 1955 flood. At Matewan, 53 homes and many business places were inundated. In Williamson, there was some flooding in the low places of the town. Although stages at most points in the Big Sandy Basin were considerably below those registered in the disastrous flood of January 30, 1957, damage is expected to total nearly \$2 million.

Light flooding occurred along the lower Scioto in Ohio from the 5th to the 7th. Minor damage resulted to small acreage of early-seeded crops.

The brief flooding of the Kentucky River at Jackson, Ky., on the 7th and 8th was due to heavy rainfall (2.5 to 3 inches) from the 4th through the 7th. Damage was confined to inundated farmland, gardens, and tobacco beds.

The high water on the Green River at Woodbury, Ky., from April 29 to May 2 was due to heavy rain (1.75 inches) from April 27 to April 29. Heavy rain (2 inches) over the lower Green Basin from May 2 to 6 resulted in flooding at Calhoun, Ky., from the 2d to the 17th.

Heavy rainfall (3 to 4 inches) from the 2d to the 7th caused light flooding in the White Basin in Indiana and in the Little Wabash Basin in Illinois between the 5th and 16th. Damage was insignificant because of the season of the year. However, the flood caused considerable delay in plowing for corn because of prolonged standing water and wet ground.

The only flooding in the Cumberland Basin during May was in the headwaters of the Cumberland River at Williamsburg, Ky., from the 7th to the 10th. Rainfall during the first 8 days of May averaged 3.5 inches in the upper Cumberland Basin. No damage occurred as only lowlands were inundated.

High flows resulted in the Tennessee River Basin from the rain that fell every day during the first 10 days over considerable portions of the Tennessee River drainage area. High discharges were scheduled at the main stream dams from Guntersville through Kentucky, causing the river at Gilbertsville, Ky., below Kentucky Dam, to remain above summer flood levels through the major portion of the month and also causing slight flooding at Florence and Whitesburg, Ala. No damages resulted from these overflows other than to further delay farm activity in the Gilbertsville area.

The flooding along the main stem of the Ohio during May was due to rainfall during the last 10 days of April and the first week of May. The rainfall was especially heavy over the tributary streams in West Virginia and eastern Kentucky, with the Big Sandy a major contributor. The flooding along the Ohio, which was in flood from Pomeroy, Ohio, to the mouth, was mostly minor with crest stages ranging from 1 foot above flood stage at Evansville, Ind., to 13.2 feet above flood stage at Dam 50, Fords Ferry, Ky. This flood was unprecedented for so late in the season. Previous flooding in May was in 1933. Major flood damage was confined to inundation of cultivated farmland, gardens, tobacco beds, and pastures. Some highways were closed for a brief period, necessitating rerouting. Several businesses were moved to higher ground. The Coffey Dam at Markland, Ind., was overtopped by flood, requiring the moving of equipment, pumping out, cleaning up mud, etc.

White Basin.--The flooding on the Black, Little

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

MAY 1958

Red, and White Rivers during May was due to rainfall during the last week in April and the 1st week in May. There was a second period of moderate to locally heavy rain on the 8th and 9th. The Little Red River went above flood stage twice during the first half of the month. No damage resulted from the overflows, except to further delay the use of low land adjacent to the streams for agricultural purposes.

Arkansas Basin.--Flash floods occurred in the headwaters of the Arkansas Basin in the Lamar-Granada, Colo., area on the 13th due to heavy thundershowers. Santa Fe Railway tracks were damaged to the east of Lamar, and a temporary rerouting was used for a few hours, due to "cloudburst" type rain southeast of Lamar. There was also some property damage or flooding in and near Granada, Colo., due to the rapid rise of tributaries from heavy rain southeast of Lamar.

The flooding on the Poteau River at Poteau, Okla., on the 2d and 3d was due to heavy rain on the 1st. Only minor damage was reported.

There were two periods of flooding on the Petit Jean at Danville, Ark. The first, occurred from the 3d through the 5th and the second on the 10th and 11th. No damage was reported.

Red Basin.--Record to near record floods occurred in streams in southern Arkansas and northern Louisiana from the heavy rains during the last week of April and the first week of May. The Little Missouri exceeded the previous record stage of 27.2 feet at Boughton, Ark., by 1.9 feet on the 3d. The Ouachita River at Camden, Ark., on the 5th approached within 0.9 foot of the record crest of 44.8 feet on April 3, 1945. Further downstream at Monroe, La., the previous record stage of 50.4 feet of April 15, 1945, was exceeded by 0.05 foot on the 23d. Flooding continued on the Black River at Jonesville, La., from May 14 to June 11. A near record crest of 45.5 feet occurred on the Sulphur River at Hagansport, Tex., on the 3d. This was within 0.1 foot of the 45.6 record crest of November 9, 1957. Considerable damage resulted from the flash floods in southern Arkansas and the record to near record flooding along the main streams.

Lower Mississippi Basin.--The flooding on the St. Francis River at Fisk, Mo., and St. Francis, Ark., was due to heavy rains from April 26 through April 29. Additional heavy rain was reported on the 2d, 3d, and 5th, with a few light amounts on the 4th and 6th. Discharge at Wappapello Dam was such that Fisk crested at a stage of 24.0 feet on the 8th, 4.0 feet above flood stage. Additional heavy rain (1.7 inches) on the 9th and 10th at St. Francis, Ark., resulted in a crest of 21.5 feet on the 10th at this point. Since mid-November, the river has been at or above flood stage for 59 days at Fisk, Mo., and for 84 days at St. Francis, Ark. The damage from the April-May flood was negligible, as floods in the fall, winter, and early spring had prevented planting any winter crops, and there were no crops or pastures to damage. Most crops can now be planted and will mature unless a very early frost comes this fall.

The heavy rain (6-16 inches) from April 25 to May 6 caused widespread flooding on all tributary streams of the Mississippi. The Big Black River was in flood for the first 20 days of the month, and one State Highway was closed by high water for several days. At Bovina, Miss., a record stage of 39.9 feet was reached on the 6th. The Big

Sunflower River reached record stages at Sunflower, Miss., during the first part of the month and caused widespread flooding of low areas in that section of the state. One family was evacuated near Rolling Fork, Miss., and several families were supplied by boat for several days. The Tallahatchie River was in flood at Swan Lake, Miss., for the first 17 days of the month. The Yazoo River was in flood from Yazoo City, Miss., to its mouth from April 29 to June 10.

The only flooding along the main stem of the Mississippi was at Caruthersville, Mo., where bank-full stage was reached from the 12th to the 14th and on the 18th. Overflow was confined to very low areas between the levee and the river in Missouri and Arkansas, and to unprotected lowlands in Tennessee. The loss from this flood was negligible.

WEST GULF OF MEXICO DRAINAGE

The heavy rains from April 25 to May 4 caused overflow along the Sabine River beginning at Mineola, Tex., on April 27 and continuing in flood to June 5 at Deweyville, Tex. Rainfall over the Sabine Basin during this period averaged 9.1 inches, with 6.4 inches occurring during the latter part of April. The crests ranged from 14.0 feet above flood stage at Gladewater, Tex., to 1.6 feet above flood stage at Deweyville, Tex.

The Trinity River was in flood as far as Trinidad, Tex., in the beginning of the month from the heavy rain during the latter part of April. Additional heavy rain during the first 3 days of May caused flash flooding of smaller streams and prolonged additional crests on major streams. Flood control reservoirs prevented major flooding of the Trinity in the Fort Worth - Dallas area. The rainfall over the Trinity for the first 3 days of May averaged 2 to 5 inches with the heaviest fall over the eastern and southern portions of the basin. The rain ended abruptly on the 3d when conditions were nearing a major flood threat. The remainder of the month was unusually dry and all the high stages, and variations of stages, after the 7th were due to lake releases. Damage was due largely to flash flooding of smaller streams. Several hundred residents were evacuated from the area called "Flood Bend" below Lake Worth Dam, where the uncontrolled discharge from the lake held the west fork level within inches of a number of homes for several days. No homes in the "Flood Bend" area were actually flooded. About 25 homes were evacuated in suburban Richland Hills, due to flash flooding of Big Fossil Creek. There was only minor damage to a few of these houses. About 20 families were evacuated from the Lakeshore area of Eagle Mountain Lake as the lake reached about 6 feet above spillway level. Residents who moved from Roosevelt Heights section of south Dallas the last week of April were kept out of that area by flood water until May 5. Flash flooding in the Gainesville area the evening of May 1 necessitated the evacuation of about 200 residents in that city during the night. There was extensive flooding of farmland along the East Fork, Chambers, Richland, and Cedar Creeks, with numerous levee breaks.

The heavy rains (up to 8 inches) which began early on the morning of the 2d caused a 27-foot rise on the Guadalupe River just below Comfort, Tex., by evening. A rise of almost a foot higher than the 1952 flood occurred on the Blanco River near Wimberley, Tex. Major rises occurred on the

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

MAY 1958

Leon Creek, flowing to the west of San Antonio, Tex.; on the Salado Creek, flowing to the north of the city; and on the Cibolo Creek from Boerne to northwest of San Antonio. One youth was drowned, when the automobile in which he was riding was washed away while endeavoring to cross a flooded crossing of the Salado Creek just to the north of San Antonio about 10 p.m. No flooding occurred in the main stream of the San Antonio River, except over the flat lands below Goliad, Tex. Very little flooding occurred on the Lavaca River. The Navidad crested at Granado, Tex., about 4 feet above flood stage, but only grazing land was flooded and damage was very light. In the New Braunfels area on the Guadalupe, moderate damage resulted to eight dwellings including furnishings. Many road crossings were closed along the river, but no serious damage occurred to roads or bridges. Approximately 2,000 acres of farmlands were flooded with crops completely lost, and approximately 14,000 acres of grazing land below Victoria were flooded with moderate damage to the grass on this land. Some evacuations were necessary in the city of Victoria but only for a short time.

Major flooding occurred on Barton, Bull, and Onion Creeks around Austin, Tex., from the 2- to 7-inch rains which fell in the Colorado Basin around Austin, Tex., during the afternoon of May 2. Damage to bathing and park installations at Zilker Park in Austin was as extensive as in the 1957 flood.

Flash flooding occurred on Hondo Creek around Quihi, Tex., from heavy local rains on the 3d, 4th, and 5th. The heaviest amount reported was 5.86 inches at Quihi. Near bankfull stages occurred on the Atascosa.

Bankfull stages were exceeded on the Rio Grande at Lobatos Bridge, Colo., and at Embudo, Espanola, and Albuquerque, N. Mex., during the month. Near bankfull stages were reached at Del Rio and Eagle Pass, Tex., from the 3- to 5-inch rains which occurred in the Del Rio and Eagle Pass, Tex., area

on the 13th and 14th.

GULF OF CALIFORNIA DRAINAGE

The flooding on the Gunnison River at Delta, Colo., during May and the early part of June was due to runoff from snowmelt. This winter's snowfall in the Gunnison Valley was considerably above normal. The abnormally warm weather in May produced a high and unusually early runoff on the Gunnison and its tributaries. The crest of 12.8 feet at Delta, Colo., on the 24th was exceeded only by the record crest of 13.5 feet on June 6, 1957. A tourist court was flooded and out of business for several days. A few families had to leave their homes for a few days during the flood. Some farmland was flooded, and minor damage was reported to some roads.

Light flooding occurred on the Animas River at Durango, Colo., from the 7th to the 13th and from the 16th to the 31st.

Columbia Basin.--The dirt road between Huntington and Richland, Oreg., was temporarily closed on May 19 due to the rising water in the Snake River. There was some flooding on the Big and Little Wood Rivers in Idaho on the 21st. Minor flooding occurred on the Salmon River at Salmon, Idaho, on the 22d.

Tributaries and the main stem of the Columbia River began to rise early in May and reached the peak of the year at most points above Vancouver, Wash., by the end of May. Flooding was confined to pasture land areas and did not result in large monetary losses. Locations reporting flood conditions included Emmett, Idaho, on the Payette; the Columbia at Vancouver, Wash.; and the Willamette at Portland, Oreg. There was less snow in parts of the Cascades and Rockies than in any other year in the memory of local observers. The weather in the Columbia Basin during May was unusually warm and dry, with two rainy periods near the middle and end of the month.

FLOOD STAGE DATA

(All dates in May unless otherwise specified)

MAY 1958

River and station	Flood stage	Above flood stages -dates		Crest*		River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date			From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE						MISSISSIPPI SYSTEM					
Connecticut: Hartford, Conn.	16	Apr. 18	2	22.1	Apr. 25	Upper Mississippi Basin					
Potomac: Washington, D. C.	12	7	7	12.0	7	Sangamon: Riverton, Ill.	13	5	8	15.4	7
James: Columbia, Va.	18	7	8	18.4	7	Kaskaskia: Carlyle, Ill.	21	7	10	22.1	9
Richmond, nr., Va.	12	7	8	12.7	8	Missouri Basin					
Roanoke: Altavista, Va.	18	6	7	20.4	6	Saline: Wilson, Kans.	12	17	19	20.6	18
Randolph, Va.	21	7	9	24.75	8	Lincoln, Kans.	30	18	20	34.65	19
Weldon, N. C.	31	6	9	#37.8 #31.0	7 16, 17	Tescott, Kans.	25	19	22	29.2	21
Scotland Neck, N. C.	28	7	23	#30.1	8	Solomon: Lenora, Kans.	10	3	3	13.0	3
Williamston, N. C.	10	Apr. 1	31	#11.3 11.5	Apr. 18-24 11-14	Osborne, Kans.	12	17	18	18.1	17
Tar: Rocky Mount, N. C.	9	7	12	11.7	10	Beloit, Kans.	20	17	19	24.1	19
Tarboro, N. C.	19	8	16	29.2	12	Glascow, Kans.	22	17	20	24.45	20
Greenville, N. C.	13	9	18	#19.7	14	Niles, Kans.	25	21	21	25.0	21
Neuse: Neuse, N. C.	14	6	12	#19.5	7-8	Republicans: Clay Center, Kans.	15	18	18	15.3	18
Smithfield, N. C.	13	Apr. 27	5	#17.9 22.75	1 9	Pottawatomie Creek: Garnett, Kans.	26	24	25	28.35	24
Goldsboro, N. C.	14	3	18	#23.2	13	Osage, Shell City, Mo.	25	6	8	26.0	8
Kinston, N. C.	14	7	21	18.7	17	Ohio Basin					
Cape Fear: Moncure, N. C.	20	7	7	#20.1	7	Monongahela: Lock 4, Charleroi, Pa.	24	6	6	24.3	6
Fayetteville, N. C.	35	8	9	#40.6	8	Lock 2, Braddock, Pa.	26	6	6	26.4	6
Lock 2, Elizabethtown, N. C.	20	Apr. 27	13	28.9 30.6	2 9	Guyandot: Branchland, W. Va.	30	7	9	35.3	9
Rocky: Norwood, N. C.	16	7	7	16.1	7	Tug Fork: Matewan, W. Va.	30	6	7	36.4	6
Pee Dee: Cheraw, S. C.	30	Apr. 29	2	37.4 30.6	Apr. 29 8	Williamson, W. Va.	30	6	7	36.3	7
Peedee, S. C.	19	Apr. 29	17	24.3	5	Kermit, W. Va.	38	7	8	43.7	7
Saluda: Pelzer, S. C.	6	Apr. 29	5	9.0 8.0 6.0	Apr. 29 3 10	Beaver Creek: Martin, Ky.	36	7	8	42.7	8
Chappells, S. C.	13	7	7	13.8	7	Levisa Fork: Elkhorn City, Ky.	36	6	8	42.8	7
Broad: Blair, S. C.	14	Apr. 29	4	22.8 14.2	Apr. 30 8	Pikeville, Ky.	38	7	8	42.5	8
Wateree: Camden, S. C.	23	1	1	23.9	1	Prestonsburg, Ky.	40	8	8	41.1	8
North Fork Edisto: Orangeburg, S. C.	8		3	9.6	1	Paintsville, Ky.	45	7	10	51.2	8-9
Edisto: Givhans Ferry, S. C.	10	7	9	10.1	8-9	Scioto: Circleville, Ohio	14	5	7	16.6	5
Savannah: Burton's Ferry, Ga.	15	6	6	15.3	6	Piketon, Ohio	16	5	9	21.3	8
Clyo, Ga.	11		23	13.4 13.2	10-11 17-18	Kentucky: Jackson, Ky.	29	7	8	31.1	8
Altamaha: Charlotte, Ga.	15	1	1	15.2	1	Green: Lock 4, Woodbury, Ky.	33	Apr. 29	2	34.4	Apr. 30
Satilla: Atkinson, Ga.	13	1	3	14.0	1	Lock 2, Calhoun, Ky.	23	2	17	26.3	11
EAST GULF OF MEXICO DRAINAGE						East Fork: Seymour, Ind.	14	7	8	16.9	7
Oostaula: Resaca, Ga.	22	2	2	22.1	2	Bedford, Ind.	20	9	12	23.8	10
Tombigbee: Amory, Miss.	20	Apr. 30	10	23.0 22.05 24.25	Apr. 30 3 6	Williams, Ind.	10	10	12	11.5	11
Fulton, Miss.	16	1	4	16.5 16.25	1 3	White: Anderson, Ind.	10	5 7	5 7	10.2 10.4	5 7
Macon, Miss.	20	Apr. 29	13	27.7	5	Spencer, Ind.	14	7	8	14.75	7
Tibbie, Miss.	23	Apr. 28	7	24.8 26.1	Apr. 28 11	Elliston, Ind.	18	7	8	18.75	8
Aberdeen, Miss.	34	1	8	34.9 35.8	2 6, 7	Edwardsport, Ind.	15	8	12	16.8	9
Gainesville, Ala.	36	3	16	44.4	9, 10	Petersburg, Ind.	16	6	16	20.75	12
Lock 4, Demopolis, Ala.	48	3	15	54.6	8, 9	Hazleton, Ind.	16	7	7	16.9	7
Lock 3, Whitfield, Ala.	33	Apr. 29	19	53.7	9	Skillet Fork: Wayne City, Ill.	15	5	8	17.3	7
Lock 2, Pennington, Ala.	46	11	18	55.0	11	Little Wabash: Wilcox, nr., Ill.	16	5	9		
Lock 1, Jackson, Ala.	31	2	21	36.9	13, 14	Saline: Harrisburg, Ill.	13	14	21	18.7 14.8	4 17
Pearl: Edinburg, Miss.	20	Apr. 30	11	24.6	5	Cumberland: Williamsburg, Ky.	21	7	10	23.8	8
Jackson, Miss.	18	Apr. 29	21	34.2	8	South Chickamauga Creek: Chickamauga, Tenn.	10	Apr. 28	2	13.9	30
Monticello, Miss.	19	5	22	25.2	14-15	Tennessee: Paducah, nr., Ky.	34	Apr. 30	24	41.0	19
Columbia, Miss.	17	10	22	20.6	17	Florence, Ala.	18	Apr. 29	3 10 9 10	20.4 18.4 18.5	1 9 11
Bogalusa, La.	15	Apr. 30	27	19.8	19	Whitesburg, Ala.	560	Apr. 29 May 10	3 May 12	564.7 560.3	Apr. 30 11
Pearl River, La.	12	3	29	16.1	21	Ohio: Pomeroy, Ohio	46	8	9	47.2	9
						Point Pleasant, W. Va.	40	7	11	46.6	9
						Gallipolis Dam, Hogsett, W. Va.	50	11	10	52.0	9

FLOOD STAGE DATA

(All dates in May unless otherwise specified)

MAY 1958

River and station	Flood stage	Above flood stages -dates		Crest*	
		From-	To-	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
Ohio: (Cont'd.)					
Dam 28, Huntington, W. Va.	50	7	11	55.3	9
Dam 29, Ashland, Ky.	51	7	12	59.3	9
Dam 30, Greenup, Ky.	52	7	12	59.8	9
Portsmouth, Ohio	50	7	12	57.3	9
Dam 33, Maysville, Ky.	50	7	13	57.5	10
Dam 34, Chilco, Ohio	49	8	13	54.6	10
Cincinnati, Ohio	52	7	14	58.0	10
Dam 39, Markland, Ind.	48	9	13	50.5	11
Madison, Ind.	46	7	14	49.4	12
Dam 41, Louisville, Ky. Upper gage	28	8	15	33.3	12
Dam 41, Louisville, Ky. Lower gage	55	8	15	60.2	12
Dam 43, Evans Landing, Ind.	57	9	15	61.1	12
Dam 44, Leavenworth, Ind.	53	7	16	60.7	12
Dam 45, Addison, Ky.	47	7	17	52.5	13
Tell City, Ind.	38	5	18	45.1	13
Dam 46, Owensboro, Ky.	41	10	16	43.6	13
Dam 47, Newburgh, Ind.	38	2	20	45.4	15
Evansville, Ind.	42	11	11	43.0	14
Dam 48, Cypress, Ind.	38	4	20	45.1	15
Mount Vernon, Ind.	35	4	21	42.7	16
Dam 49, Uniontown, Ky.	37	5	21	44.5	16
Shawneetown, Ill.	33	3	23	44.5	16
Dam 50, Fords Ferry, Ky.	34	2	23	47.2	16
Dam 51, Golconda, Ill.	40	10	21	43.7	17
Paducah, Ky.	39	14	22	40.2	17, 18, 19
Dam 52, Brookport, Ill.	37	3	23	42.0	19
Dam 53, Grand Chain, Ill.	42	5	23	46.0	16
Cairo, Ill.	40	6	23	43.1	10
White Basin					
Black: Poplar Bluff, Mo.	16	6	6	16.6	5
Pocahontas, Ark.	17	4	21	21.4	10
Black Rock, Ark.	14	3	26	24.5	6
Little Red: Heber Springs, Ark.	24	3	4	33.8	3
		10	10	26.2	10
Judsonia, Ark.	30	3	7	35.9	8
		10	12	32.8	11
White: Newport, Ark.	26	10	14	27.9	11
Augusta, Ark.	32	6	20	33.4	13
Georgetown, Ark.	21	3	25	25.1	13
Des Arc, Ark.	24	8	24	28.3	14
Clarendon, Ark.	26	Mar. 24	31	30.5	15
St. Charles, Ark.	25	Mar. 28	31	29.1	20
Arkansas Basin					
Poteau: Poteau, Okla.	24	2	3	26.0	2
Petit Jean: Danville, Ark.	20	3	5	23.7	3
		10	11	20.8	10
Red Basin					
Caddo: Glenwood, Ark.	10	1	6	18.4	3
Little Missouri: Boughton, Ark.	20	1	5	29.1	3
Quachita: Arkadelphia, Ark.	17	1	5	27.65	3
Camden, Ark.	26	Apr. 28	19	43.9	5
		21	21	26.0	21
Monroe, La.	40	3	1/	50.45	23
Black: Jonesville, La.	50	14	June 11	53.0	29
Little: Horatio, Ark.	27	3	7	32.7	8
Whitecliffs, Ark.	25	Apr. 29	11	29.5	5

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
<u>MISSISSIPPI SYSTEM (Cont'd.)</u>					
<u>Red Basin (Cont'd.)</u>					
Sulphur: Hagansport, Tex.	38		10	45.5	3
Naples, Tex.	22	Apr. 27	1/	33.6	5
Cypress: Jefferson, Tex.	18	Apr. 29	12	23.0	1
Red: Index, Ark.	25	5	6	25.8	6
Fulton, Ark.	27	5	8	29.4	6
Shreveport, La.	30	5	12	33.7	8
Grand Ecure, La.	33	3	21	41.9	11
Alexandria, La.	32	4	23	40.2	13
<u>Lower Mississippi Basin</u>					
St. Francis: Fisk, Mo.	20	Apr. 29	16	24.0	8
St. Francis, Ark.	18	2	22	21.5	10
Tallahatchie: Swan Lake, Miss.	26	Apr. 29	18	30.4	5
Yazoo: Yazoo City, Miss.	29	Apr. 30	June 10	34.3	22
Big Black: Pickens, Miss.	16	Apr. 30	10	20.2	2
Bovina, Miss.	28	Apr. 30	20	39.9	6
Mississippi: Caruthersville, Mo.	32	12	14	32.0	12
		18	18	32.0	18
<u>WEST GULF OF MEXICO DRAINAGE</u>					
Sabine: Mineola, Tex.	14	Apr. 27	12	20.55	Apr. 30
Gladewater, Tex.	26	Apr. 28	18	40.0	3
Logansport, La.	25	4	25	37.8	10-11
Milam, Tex.	35	12	27	43.4	16
Bon Wier, Tex.	17	14	June 1	21.2	24
Deweyville, Tex.	14	15	June 5	15.6	26
East Fork: Rockwall, Tex.	10	3	3	11.4	3
		7	11	13.2	10
		13	21	13.4	15
Trinity: Dallas, Tex.	30	Apr. 30	20	34.1	4
Rosser, Tex.	26	Apr. 27	25	33.6	3
Trinidad, Tex.	28	Apr. 28	29	40.9	5
Long Lake, Tex.	40	2	18	48.8	7
Midway, Tex.	40	7	21	46.8	10
Riverside, Tex.	40	12	18	44.85	14
Liberty, Tex.	24	4	1/	28.35	21
Little: Cameron, Tex.	30	4	5	34.5	4
Navidad: Ganado, Tex.	21	8	6	25.1	5
Lavaca: Edna, Tex.	21	5	5	21.3	5
Guadalupe: New Braunfels, Tex.	21	2	3	24.0	3
Gonzales, Tex.	20	4	6	32.4	5
Cuero, Tex.	23	6	8	26.2	7
Victoria, Tex.	21	6	10	28.2	9
Rio Grande: Lobatos Bridge, Colo.	4	11	15		
		26	31	5.0	29
Embudo, N. Mex.	8	10	31	9.85	30
Espanola, N. Mex.	7	2	2		
		5	31	8.6	30
Albuquerque, N. Mex.	6	6	7		
		9	31	6.95	30
<u>GULF OF CALIFORNIA DRAINAGE</u>					
Eagle: Eagle, Colo.	5	26	31		
		June 2	June 4		
		June 6	June 8	5.7	June 6
Gunnison: Delta, Colo.	11	8	14		
		18	June 1	12.8	May 24
		June 6	June 9		
Animas: Durango, Colo.	5	7	13		
		16	31	7.4	28
<u>PACIFIC SLOPE DRAINAGE</u>					
Willamette: Portland, Oreg.	18	24	1/	20.0	31
Columbia: Vancouver, Wash.	15	20	1/	20.3	31

* Provisional

† Highest Stage Observed

1/ Continued at the end of month

Average monthly values

MAY 1958

		ALBANY, N. Y. (1006 MB.)				ALBUQUERQUE, N. MEX. (839 MB.)				AMARILLO, TEX. (892 MB.)				ANCHORAGE, ALASKA (1006 MB.)				ANNETTE, ALASKA (1013 MB.)												
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind							
					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed						
SURFACE	31	86	9.3	78	227	2.1	31	1,619	13.5	55	48	3.3	31	1,095	13.0	86	201	2.9	31	30	6.3	77	172	5.4	31	37	8.6	85	140	1.2
1,000---	31	131	9.2	74	219	2.5	31	1,102					31	1,126			31	176	3.9	31	142	8.9	81	285	0.8	81	285	0.8		
950----	31	555	8.2	63	252	5.2	31	546					31	557			31	497	5.4	64	148	8.0	31	564	8.0	72	214	1.0		
900-----	31	1,002	6.4	62	273	9.3	31	1,014					31	1,020			31	936	2.4	65	148	8.9	31	1,011	5.8	66	201	2.3		
850-----	31	1,469	4.3	62	277	14.8	31	1,504					31	1,505	15.6	57	219	8.2	31	1,396	- 9	71	149	8.4	31	1,477	3.5	60	225	2.9
800-----	31	1,962	2.2	58	277	16.9	31	2,018	14.5	41	184	1.9	31	2,018	13.3	51	249	8.4	31	1,877	- 4.2	72	157	9.5	31	1,967	- 6	62	236	5.6
750-----	31	2,482		51	273	19.2	31	2,558	11.6	38	231	3.9	31	2,557	10.0	49	273	8.5	31	2,382	- 7.5	72	165	10.9	31	2,478	- 1	55	238	8
700-----	31	3,032	2.9	50	271	22.2	31	3,133	7.2	40	279	6.4	31	3,128	6.0	50	292	8.4	31	2,918	- 10.8	71	167	11.5	31	3,029	- 4.7	52	237	11.3
650-----	31	3,614	- 6.0	46	267	27.6	31	3,732	2.3	47	270	10.1	31	3,728	0.8	50	297	8.4	31	3,480	- 14.5	70	171	13.6	31	3,602	- 8.0	51	248	13.2
600-----	31	4,240	- 9.3	35	268	31.3	31	4,380	- 3.0	50	274	12.0	31	4,372	- 3.3	52	296	8.0	31	4,086	- 18.3	61	178	13.4	31	4,227	- 11.8	49	245	16.7
550-----	31	4,905	- 13.0		267	35.4	31	5,055	- 8.3	51	268	12.4	31	5,047	- 8.2	50	295	9.7	31	4,728	- 22.4	56	186	14.4	31	4,881	- 15.8	48	244	19.4
500-----	31	5,629	- 17.3	35	273	38.9	31	5,796	- 13.5	46	267	13.6	31	5,789	- 13.1	41	295	12.0	31	5,425	- 27.1	53	190	15.7	31	5,602	- 20.5	49	241	21.2
450-----	31	6,406	- 22.6		271	43.9	31	6,585	- 18.8	37	267	15.5	31	6,573	- 18.5	37	286	14.4	31	6,171	- 32.3	51	194	16.7	31	6,366	- 25.9	45	246	21.2
400-----	31	7,267	- 29.0		270	56.8	31	7,458	- 25.0		273	16.3	31	7,453	- 24.6		279	16.7	31	6,998	- 38.2		205	15.3	30	7,218	- 31.9	43	264	19.8
350-----	31	8,209	- 35.8		268	50.9	31	8,413	- 32.4		263	19.6	31	8,411	- 31.9		283	17.7	31	7,906	- 44.2		214	13.8	30	8,550	- 38.4		252	23.9
300-----	31	9,263	- 43.7		271	53.4	31	9,483	- 41.0		268	19.0	31	9,483	- 40.3		273	20.2	31	8,928	- 49.1		209	17.1	30	9,193	- 45.7		256	29.8
250-----	31	10,468	- 51.1		270	59.7	31	10,698	- 50.1		274	21.0	30	10,699	- 49.8		264	21.3	31	10,119	- 50.4		222	17.5	29	10,391	- 52.6		248	18.7
200-----	31	11,901	- 56.8		273	57.5	30	12,126	- 58.9		276	25.1	28	12,133	- 59.1		258	25.3	31	11,579	- 48.8		225	17.3	28	11,810	- 55.1		242	17.9
175-----	31	12,744	- 58.1		271	51.1	30	12,956	- 62.5		282	26.8	27	12,965	- 62.9		268	27.0	30	12,452	- 47.4		225	14.0	25	12,664	- 53.9			
150-----	31	13,718	- 56.5		277	45.1	30	13,905	- 62.9		279	28.6	27	13,915	- 62.6		273	27.2	29	13,476	- 47.6		218	15.2	25	13,657	- 52.9			
125-----	31	14,777	- 56.9	81	271	35.0	31	15,028	- 63.3		280	24.9	26	15,039	- 62.7		274	25.8	29	14,779	- 48.6		216	14.8	25	14,835	- 52.7			
100-----	31	16,294	- 56.6		270	24.7	30	16,399	- 63.3		283	14.4	26	16,409	- 63.0		276	16.9	29	16,146	- 49.0		209	11.7	25	16,271	- 52.7			
80-----	31	17,712	- 55.3		267	17.5	30	17,772	- 62.7		283	8.2	26	17,786	- 61.7		264	10.3	29	17,608	- 49.8		218	9.5	24	17,710	- 53.1			
60-----	29	19,560	- 52.9		252	7.6	30	19,555	- 60.2		31	1.6	24	19,583	- 58.9		311	3.7	29	19,487	- 50.2		178	5.1	23	19,568	- 53.4			
50-----	28	20,740	- 51.9		253	3.3	29	20,699	- 56.9		52	3.3	22	20,731	- 56.2		56	2.1	28	20,683	- 50.4		178	6.0	23	20,741	- 53.0			
40-----	28	22,197	- 49.9		216	1.4	29	22,125	- 53.4		41	2.7	21	22,159	- 52.7		60	4.5	27	22,142	- 50.0		162	4.5	22	22,179	- 51.9			
30-----	23	24,093	- 48.1		94	2.3	23	23,981	- 50.2		59	6.0	19	24,032	- 48.7		77	5.4	24	24,035	- 49.5		124	6.0	22	24,048	- 50.5			
25-----	13	25,304	- 46.9		5	25,161	- 49.1						15	25,233	- 46.8		87	5.1	16	25,237	- 48.5		131	8.4	21	25,332	- 49.7			
20-----													13	26,719	- 44.6		75	3.1	6	26,681	- 47.4				17	26,674	- 48.2			
15-----													8	28,679	- 41.1										15	28,587	- 44.9			

ATHENS, GA. (987 MB.)										BARROW, ALASKA (1016 MB.)										BETHEL, ALASKA (1007 MB.)										BISMARCK, N. DAK. (956 MB.)										BOISE, IDAHO (914 MB.)									
SURFACE	27	246	16.1	92	35	1.7	31	8	- 9.1	86	90	4.7	31	4	82	45	2.1	31	505	8.0	72	66	0.6	31	868	11.8	68	148	4.1																				
1,000----	27	137					31	129	- 8.5	87	94	4.7	31	63			4.1	33	31	125				31	105																								
950-----	27	577	18.4	70	277	1.9	31	530	- 6.3	79	90	2.9	31	474	- 2	68	90	7.6	31	555		97	2.1	31	536																								
900-----	27	1,040	16.3	63	265	2.9	31	952	- 5.7	71	127	1.6	31	907	- 2.1	68	125	6.8	31	1,004	11.7	51	248	4.1	31	998	14.6	53	150	1.9																			
850-----	27	1,525	13.5	64	265	4.7	31	1,400	- 6.0	68	185	2.7	31	1,359	- 4.3	65	144	7.0	31	1,481	9.8	47	301	7.8	31	1,482	14.8	41	0	0																			
800-----	27	2,033	10.1	64	267	5.1	31	1,874	- 7.6	62	162	3.7	31	1,836	- 6.5	60	144	8.4	31	1,982	7.0	48	304	12.2	31	1,992	11.7	41	211	1.4																			
750-----	27	2,563	7.4	53	260	7.0	31	2,338	-10.2	59	172	4.7	31	2,338	- 9	54	150	8.4	31	2,505	3.6	52	306	16.1	31	2,526	8.0	42	211	2.7																			
700-----	27	3,044	4.6	44	262	8.4	31	2,816	-11.6	54	198	5.1	31	2,870	-11.1	51	138	8.5	31	3,067	1	50	309	19.2	31	3,093	4.0	43	210	15.2																			
650-----	27	3,728	1.3	38	271	12.2	31	3,459	-16.4	51	187	6.6	31	3,430	-15.0	49	155	8.0	31	3,651	- 3.6	42	308	20.8	31	3,687	- .3	42	234	8.9																			
600-----	27	4,374	- 2.4		267	15.2	31	4,063	-20.4	48	198	9.1	31	4,036	-18.6	48	149	8.2	31	4,285	- 7.6	42	305	22.5	31	4,327	- 4.9	40	234	9.7																			
550-----	27	5,056	- 6.7		269	13.6	31	4,694	-24.9	45	194	10.5	31	4,674	-22.5	48	187	5.6	31	4,950	-11.8	38	299	22.9	31	4,997	- 9.9	42	225	9.7																			
500-----	27	5,799	-11.2		272	14.4	31	5,388	-30.0	44	191	12.4	31	5,374	-26.9	47	197	7.2	31	5,682	-16.7	35	300	24.3	31	5,734	-15.5	41	225	12.4																			
450-----	27	6,594	-16.8		267	15.5	31	6,125	-35.5	44	188	10.5	31	6,123	-32.0	45	208	8.5	31	6,454	-22.5	35	297	28.2	31	6,514	-21.0	35	230	13.0																			
400-----	27	7,475	-23.3		268	16.3	31	6,942	-41.2		187	11.7	31	6,951	-38.0	49	215	9.1	31	7,320	-29.0	33	295	29.3	31	7,382	-27.7	39	238	13.0																			
350-----	27	8,356	-30.1		269	17.0	31	7,819	-48.1		187	12.4	31	7,828	-44.1	49	226	10.3	31	8,191	-36.0	33	296	35.8	31	8,253	-34.0	38	240	15.2																			
300-----	27	9,519	-38.4		261	24.1	31	8,845	-52.4		173	11.1	31	8,879	-49.9		264	13.4	31	9,312	-44.7		287	32	31	9,384	-43.5		257	17.8																			
250-----	27	10,748	-47.7		266	35.2	31	10,025	-50.9		180	10.5	31	10,065	-51.2		242	12.4	31	10,508	-53.8		280	35.6	31	10,587	-52.6		257	17.5																			
200-----	27	12,188	-57.4		269	37.1	31	11,493	-46.4		209	9.7	31	11,526	-47.6		235	11.3	30	11,917	-59.5		280	36.9	31	12,005	-59.5		288	17.5																			
175-----	27	13,024	-61.4		271	33.8	31	12,382	-45.5		177	8.7	31	12,410	-46.7		226	9.7	30	12,753	-59.1		285	35.0	31	12,839	-60.0		277	13.2																			
150-----	27	13,974	-64.0		269	35.8	31	13,411	-45.3		199	7.6	31	13,432	-46.3		223	8.0	30	13,725	-57.1		287	26.6	31	13,804	-58.4		280	12.6																			
125-----	27	15,089	-64.7		267	27.6	30	14,632	-45.7		210	9.5	31	14,639	-47.9		228	6.8	30	14,878	-57.6		297	20.0	31	14,951	-58.7		289	8.9																			
100-----	27	16,455	-64.0		280	22.0	30	16,116	-46.8		202	9.9	31	16,111	-46.8		205	6.8	30	16,286	-57.5		306	19.0	31	16,363	-57.5		289	7.6																			
80-----	26	17,828	-62.8		274	13.0	30	17,600	-46.6		192	8.5	30	17,585	-49.1		218	6.0	30	17,698	-56.8		325	12.4	28	17,769	-58.2																						
60-----	26	19,612	-59.9		299	6.6	29	19,514	-46.3		172	7.8	30	19,470	-49.9		163	3.5	30	19,527	-54.8		351	9.9	28	19,582	-57.5																						
50-----	26	20,757	-57.5		64	6.6	29	20,727	-46.0		153	7.2	29	20,666	-49.9		170	6.2	30	20,698	-52.7		21	5.8	28	20,737	-56.2																						
40-----	26	22,176	-54.5		83	6.4	29	22,213	-45.6		145	6.8	28	22,132	-50.0		116	4.7	29	22,144	-50.5		53	5.4	24	22,162	-53.5																						
30-----	25	24,035	-50.6		85	7.8	29	24,312	-45.2		134	8.4	22	24,022	-50.4				26	24,034	-46.2		45	5.4	23	24,028	-50.1																						
25-----	25	25,234	-48.2		78	8.5	23	25,236	-44.6		148	7.0	14	25,186	-50.0				24	25,242	-48.8				17	25,217	-48.2																						
20-----	21	26,719	-45.4		67	8.2	19	26,814	-43.7										20	26,710	-45.5				8	26,647	-46.4																						
15-----	17	28,657	-42.3		93	6.8	12	28,737	-47.1										9	28,644	-42.6																												
10-----	8	31,423	-38.9		7		21	31,446	-40.1																																								

BROWNSVILLE, TEX. (1012 MB.)										BUFFALO, N. Y. (993 MB.)										BURRWOOD, LA. (1014 MB.)										CAPE HATTERAS, N. C. (1016 MB.)										CARIBOU, ME. (991 MB.)									
SURFACE	31	17	21.3	97	155	1.4	31	182	9.1	80	229	2.5	31	31	22.1	88	138	2.7	31	4	17.7	90	178	1.4	31	119	6.2	78	217	3.3																			
1,000----	31	112	22.6	89	145	3.3	31	123					31	126	22.1	85	120	2.7	31	139	18.5	78	206	3.1	31	119																							
950-----	31	557	20.6	81	149	7.0	31	548	9.9	55	245	7.6	31	573	19.9	77	118	4.7	31	574	16.8	68	236	4.3	31	538	4.4	69	230	6																			
900-----	31	1,026	19.4	63	154	6.4	31	998	6.9	49	262	11.5	31	1,037	17.1	73	140	4.7	31	1,039	14.4	62	266	5.2	31	978	2.3	67	256	9																			
850-----	31	1,517	17.0	55	152	4.3	31	1,467	5.1	51	273	16.7	31	1,524	14.9	62	155	4.3	31	1,520	11.7	65	271	7.4	31	1,438	.0	67	264	12.6																			
800-----	31	2,032	14.2	51	173	1.4	31	1,960	3.0	51	283	22.2	31	2,036	12.3	56	167	4.1	31	2,026	9.0	60	267	8.5	31	1,923	- 2.1	61	265	14.2																			
750-----	31	2,573	11.2	45	305	1.4	31	2,479	.4	49	280	25.1	31	2,574	9.6	52	187	2.7	31	2,564	6.4	55	261	11.9	31	2,436	- 4.2	54	261	18.1																			
700-----	31	3,146	7.3	46	308	3.3	31	3,032	- 2.3	45	293	26.8	31	3,146	6.3	45	223	2.1	31	3,122	3.3	53	262	13.9	31	3,022	- 5.1	51	260	20.8																			
650-----	31	3,750	3.5	3	258	5.2	31	3,625	- 4.1		281	32.1	31	3,745	2.8	47	261	2.1	31	3,715	.1	49	253	15.3	31	3,549	- 9.3	46	257	24.5																			
600-----	31	4,397	- 4.4	40	291	8.9	31	4,241	- 9.0		279	36.7	31	4,394	- 1.1	44	281	4.3	31	4,358	- 3.3	46	262	19.2	31	4,168	-12.6	40	258	20.8																			
550-----	31	5,080	- 4.7	38	284	10.9	31	4,906	-12.9	41	279	41.2	31	5,077	- 5.3	36	271	7.4	30	5,033	- 7.4	41	270	21.8	31	4,825	-16.2	36	258	31.7																			
500-----	31	5,831	- 9.6	34	282	13.4	31	5,631	-17.6	39	275	43.5	30	5,824	-10.2		271	9.5	30	5,780	-11.9		268	24.9	31	5,539	-20.7	30	260	34.4																			
450-----	31	6,634	-15.2	36	279	16.7	31	6,408	-22.9	38	275	46.6	30	6,626	-15.7		276	11.3	30	6,567	-17.1		270	27.8	31	6,309	-26.1	37	261	45.4																			
400-----	31	7,517	-21.6	35	274	20.0	31	7,266	-29.0	39	271	50.7	30	7,507	-22.0		252	13.6	30	7,453	-23.3	34	273	31.3	31	7,153	-32.1	30	264	60.6																			
350-----	31	8,487	-28.7		267	19.0	31	8,209	-35.7	40	270	55.8	30	8,478	-29.1	30	258	18.3	30	8,426	-30.3	34	273	34.2	31	7,853	-39.2	31	263	65.9																			
300-----	31	9,400	-34.5		258	16.5	31	9,122	-43.3		268	6	30	9,122	-43.3	30	242	23.9	30	9,096	-38.1		270	37.9	31	9,129	-45.1	255	48	40																			
250-----	31	10,805	-47.3		262	23.1	31	10,472	-50.9		268	63.5	29	10,794	-47.4		236	30.7	30	10,724	-48.1		267	43.9	31	10,329	-51.5	257	47	0																			
200-----	31	12,446	-57.7		267	18.8	31	11,904	-56.4		273	63.7	28	12,238	-57.2		228	27.8	30	12,161	-58.1		267	53.6	31	11,769	-53.1	257	43	9																			
175-----	31	13,080	-61.9		267	22.7	30	12,752	-56.4		271	53.8	28	13,073	-62.0		230	33.0	30	12,993	-62.3		270	55.8	31	12,630	-52.3	253	38	3																			
150-----	31	14,026	-65.1		269	21.8	29	13,732	-56.2		269	45.3	28	14,017	-65.2		233	28.8	30	13,942	-63.5		266	49.0	30	13,630	-52.3	253	37	1																			
125-----	31	15,130	-67.6		272	20.6	29	14,891	-55.9		268	30.9	28	15,123	-66.3		241	33.2	30	15,061	-63.7		271	41.6	29	14,810	-53.1	254	25	3																			
100-----	30	16,470	-69.1		259	12.4	29	16,310	-56.0		271	23.7	28	16,471	-67.4		230	25.3	30	16,434	-62.7		272	28.0	28	16,250	-53.2	258	18	0																			
75-----	28	17,881	-68.0		320	4.5	28	17,732	-55.1		248	5.4	28	17,817	-66.0		241	0.0	30	17,818	-60.5		272	16.9	27	17,687	-52.6	258	11	7																			
60-----	27	19,563	-61.8		83	8.4	25	19,575	-52.8		248	5.4	27	19,574	-61.7		49	4.9	30	19,626	-56.8		286	4	24	19,554	-50.1	252	11	7																			
50-----	27	20,703	-57.4		89	14.6	25	20,756	-51.0		209	2.5	26	20,712	-58.4		73	9.7	30	20,788	-54.5		5	1.6	24	20,748	-49.3	240	3	9																			
40-----	22	22,125	-53.1		84	20.0	25	22,211	-49.8		119	1.9	26	22,132	-53.8		80	16.5	29	22,227	-51.3		91	7.2	22	22,214	-49.0	64	1	4																			
30-----	16	24,000	-48.6		88	21.2	23	24,101	-48.3		97	3.1	24	24,003	-48.9		61	16.3	27	24,112	-48.2		102	6.2	17	24,106	-47.6	120	1	2																			
25-----	10	25,216	-45.3		22	25,308	-47.0		22	25,308	-47.0		88	2.3	22	25,300	-46.7						88	4.9	14	25,332	-46.6	110	3	1																			
20-----					21	26,794	-45.0		21	26,794	-45.0		108	2.1	20	26,681	-44.2						91	5.4	19	26,707	-44.3	138	1	4																			
15-----					16	28,733	-42.1		304	1.6	16	28,733	-42.1		304	1.6	16	28,733	-42.1					18	28.52	-40.40	4																						
10-----					33	47.3	-47.2								16	31,394	-39.4						19	31,571	-36.1																								

See reference note at end of table

Average monthly values

CHARLESTON, S. C. (1015 MB.)										COLD BAY, ALASKA (1002 MB.)										COLUMBIA, MO. (988 MB.)										DAYTON, OHIO (982 MB.)										DENVER, COLO. (839 MB.)									
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind									
						Direction	Speed	Direction	Speed	Direction	Speed			Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed			Direction	Speed	Direction	Speed	Direction	Speed																				
SURFACE	31	13	18.2	96	294	1.0	31	27	3.6	85	147	7.6	31	238	13.1	85	124	3.3	31	297	11.4	66	279	1.0	31	1,611	9.1	78	221	2.7																			
1,000-	31	144	18.9	85	217	8	31	44		189	6.2	31	137								31	142		31	1,125																								
950-	31	581	17.8	83	235	3.1	31	455	.9	81	155	5.4	31	575	16.3	59	184	3.1	31	569	13.1	55	300	2.7	31	1,560																							
900-	31	1,046	15.5	63	280	2.5	31	891	-1.6	81	160	4.9	31	1,032	14.4	57	255	4.1	31	1,025	11.2	55	283	7.4	31	1,016																							
850-	31	1,529	12.8	62	330	2.9	31	1,345	-3.9	80	175	4.7	31	1,513	11.8	56	278	6.8	31	1,501	8.9	56	278	11.1	31	1,499																							
800-	31	2,037	10.6	53	305	3.1	31	1,822	-6.0	75	185	5.1	31	2,018	9.0	58	293	8.0	31	2,002	6.8	52	281	12.4	31	2,008																							
750-	31	2,569	8.0	47	286	3.0	31	2,323	-8.1	69	220	4.7	31	2,550	6.0	53	297	8.9	31	2,521	4.0	52	278	15.2	31	2,548	10.0	45	270	5.2																			
700-	31	3,139	5.0	43	274	7.6	31	2,850	-10.6	64	237	6.0	31	3,112	2.8	50	289	10.7	31	3,088	.8	50	280	18.7	31	3,118	6.0	47	307	8.0																			
650-	31	3,735	1.9	38	269	10.3	31	3,420	-13.5	56	219	8.0	31	3,701	-9	48	287	14.2	31	3,675	-2.3	45	284	22.0	31	3,716	1.3	51	303	9.3																			
600-	31	4,382	-2.0	36	269	11.5	31	4,033	-17.1	51	234	8.7	31	4,343	-4.5	40	283	16.7	31	4,313	-9.8	40	283	25.3	31	4,358	-3.9	55	301	12.4																			
550-	31	5,061	-6.2	36	267	12.8	31	4,674	-21.3	49	237	7.6	31	5,010	-8.8	38	289	17.1	31	4,981	-5.8	38	280	26.0	31	5,032	-9.3	57	291	14.8																			
500-	31	5,808	-10.8	36	264	15.0	31	5,379	-25.6	46	236	8.4	31	5,755	-13.6	33	289	17.3	31	5,719	-14.8	39	278	29.1	31	5,768	-14.6	49	283	13.6																			
450-	31	6,603	-16.2	36	260	18.7	31	6,130	-32.7	44	250	9.1	31	6,540	-19.0		291	24.1	31	6,478	-20.0	37	279	31.6	31	6,550	-20.2	38	279	15.2																			
400-	31	7,454	-22.6	36	255	20.8	31																																										

RAWINSONDE DATA

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GREENSBORO, N. C. (986 MB.)										HILO, T. H. (1017 MB.)										INTERNAT. FALLS, MINN. (972 MB.)										JACKSON, MISS. (1004 MB.)										JACKSONVILLE, FLA. (1016 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind														
					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed													
SURFACE	31	273	14.9	89	344	0.6	31	11	20.2	89	269	3.5	31	360	4.9	68	272	2.1	31	101	17.6	91	122	1.0	31	6	19.3	93	36	0.8																			
1,000---	31	150					31	154	20.2	80	306	2.5	31	122			284	4.7	31	137	18.3	86	118	1.4	31	120	18.0	85	134	1.7																			
950----	31	586	16.4	68	275	3.5	31	597	17.9	83	55	6.4	31	545	7.6	57	284	4.7	31	578	18.7	70	152	4.5	31	585	18.6	76	146	4.3																			
900----	31	1,046	14.5	66	284	6.6	31	1,058	14.9	85	62	7.6	31	988	6.2	51	291	9.7	31	1,042	16.3	69	175	3.9	31	1,053	16.4	70	140	3.3																			
850----	31	1,527	12.0	68	275	9.1	31	1,540	11.9	87	55	6.6	31	1,455	3.6	50	299	13.4	31	1,527	13.8	61	193	3.1	31	1,538	14.2	63	101	1.0																			
800----	31	2,033	9.1	66	271	11.3	31	2,047	9.3	85	64	7.2	31	1,945	1.0	46	304	17.9	31	2,036	11.2	52	257	3.3	31	2,048	11.6	59	264	1.0																			
750----	31	2,566	6.4	57	268	10.9	31	2,589	9.8	42	65	7.2	31	2,461	-1.6	44	304	21.0	31	2,573	8.0	52	275	4.9	31	2,584	8.9	54	220	2.1																			
700----	31	3,129	3.3	53	273	12.4	31	3,155	8.9		65	4.5	31	3,008	-4.1	44	300	24.7	31	3,138	4.9	43	271	5.1	31	3,155	5.9	47	238	3.7																			
650----	31	3,725	-2.2	47	268	15.0	31	3,765	5.7		43	2.9	31	3,585	-7.4	41	301	27.6	31	3,735	1.3	39	290	6.6	31	3,754	2.4	45	249	6.4																			
600----	31	4,365	-3.5	42	268	16.7	31	4,415	2.0		355	3.7	31	4,210	-11.1	41	303	30.3	31	4,379	-2.8	40	281	7.8	31	4,402	-1.3	41	250	8.9																			
550----	31	5,043	-7.4		267	18.7	31	5,106	-2.3		341	4.5	31	4,866	-15.0	41	302	34.8	31	5,057	-7.1	36	272	9.3	31	5,085	-5.2	39	255	11.7																			
500----	31	5,785	-12.1	35	268	22.3	31	5,862	-6.8		311	6.4	31	5,589	-19.4	39	304	39.1	31	5,800	-11.7		273	12.2	31	5,834	-9.9	35	252	14.4																			
450----	31	6,577	-17.7	39	273	25.3	31	6,671	-12.0		284	11.9	31	6,355	-24.9	39	302	41.6	31	6,596	-17.0		280	13.4	31	6,632	-15.6	33	252	18.3																			
400----	31	7,455	-23.9	41	270	27.2	31	7,568	-18.3		277	16.7	31	7,212	-31.3	42	300	44.5	31	7,474	-22.9		279	15.3	31	7,518	-21.9		253	22.0																			
350----	31	8,417	-30.8	40	266	28.6	31	8,551	-25.3		275	26.2	31	8,145	-38.3		298	50.9	31	8,440	-29.7		282	21.2	31	8,488	-28.9		253	24.7																			
300----	31	9,493	-39.0		260	31.5	31	9,652	-33.6		270	36.9	30	9,187	-45.6		298	56.0	31	9,521	-37.9		275	24.9	31	9,573	-37.0		250	30.1																			
250----	31	10,719	-48.4		265	36.3	31	10,907	-43.0		277	43.5	30	10,385	-51.9		298	55.2	31	10,752	-47.6		274	29.5	31	10,810	-46.2		252	37.7																			
200----	31	12,155	-58.1		268	38.5	31	12,374	-54.7		289	50.5	30	11,819	-54.7		293	49.7	31	12,191	-57.9		274	33.6	31	12,261	-56.2		252	47.4																			
175----	31	12,989	-61.7		267	34.6	31	13,217	-60.7		291	51.5	30	12,674	-54.5		295	43.1	31	13,026	-61.5		266	35.6	31	13,101	-60.7		255	47.4																			
150----	31	13,941	-62.5		271	38.1	31	14,163	-66.7		290	49.2	29	13,669	-53.9		300	34.4	30	13,975	-63.6		261	34.0	31	14,050	-65.0		260	47.4																			
125----	31	15,066	-62.8		267	30.7	31	15,250	-72.3		289	37.7	28	14,837	-54.5		300	29.0	30	15,093	-64.5		268	31.7	31	15,157	-66.2		261	41.6																			
100----	31	16,449	-61.5		279	25.5	31	16,551	-74.8		288	25.3	28	16,265	-55.0		301	23.3	30	16,457	-64.7		268	24.1	31	16,505	-66.5		268	30.5																			
80----	31	17,838	-60.1		284	15.5	31	17,851	-72.9		316	5.2	28	17,693	-54.2		306	17.1	30	17,824	-63.1		279	14.2	30	17,862	-65.6		277	16.3																			
60----	31	19,645	-57.5		294	8.7	30	19,572	-66.3		81	8.9	27	19,553	-52.7		321	8.9	29	19,602	-60.0		301	3.1	30	19,630	-60.6		355	2.1																			
50----	31	20,806	-54.9		316	2.9	30	20,689	-61.9		89	14.8	27	20,734	-51.2		342	6.2	28	20,749	-56.5		55	1.4	30	20,774	-57.5		75	5.4																			
40----	31	22,240	-52.8		70	1.2	30	22,085	-57.7		87	19.2	26	22,195	-49.5		12	3.1	28	22,178	-52.5		71	7.4	30	22,197	-53.4		84	11.3																			
30----	31	24,111	-49.9		72	5.4	28	23,925	-52.6		90	28.0	20	24,074	-47.0		346	2.7	28	24,055	-48.4		84	11.7	29	24,062	-49.7		83	13.8																			
25----	27	25,308	-48.4		70	7.2	25	25,111	-50.6		92	32.6	13	25,286	-46.1				26	25,267	-46.2		91	11.9	28	25,263	-47.3		88	16.9																			
20----	15	26,795	-45.8		14		26,577	-48.2											22	26,759	-43.8		109	9.5	28	26,748	-44.7		91	16.9																			
15----																			19	28,708	-40.2		87	11.3	23	28,689	-41.0		90	15.5																			
10----																			12	31,491	-36.3				11	31,485	-35.9																						

KING SALMON, ALASKA (1006 MB.)										KOTZEBUE, ALASKA (1012 MB.)										LAKE CHARLES, LA. (1014 MB.)										LANDER, WYO. (830 MB.)										LAS VEGAS, NEV. (935 MB.)									
SURFACE	31	15	3.0	84	178	1.7	31	5	-4.5	85	315	4.1	31	5	21.1	88	70	2.3	31	1,696	8.8	62	225	3.7	31	660	19.5	31	215	5.6																			
1,000---	31	65			181	3.7	31	101			333	3.3	31	124	21.7	83	89	3.5	31	116					31	75																							
950----	31	478	-2.2	77	164	4.9	31	505	-2.2	63	69	1.4	31	570	20.1	76	130	4.3	31	550					31	520																							
900----	31	916	-4.7	77	148	7.2	31	937	-3.6	59	133	1.4	31	1,035	17.4	73	152	3.9	31	1,012					31	993	22.4	23	226	4.1																			
850----	31	1,371	-3.0	78	155	10.3	31	1,387	-5.7	56	167	4.9	31	1,522	15.1	62	189	2.7	31	1,494					31	1,486	19.7	21	241	4.9																			
800----	31	1,849	-5.6	75	158	11.1	31	1,860	-8.4	53	168	6.4	31	2,034	12.5	55	225	2.5	31	2,000	11.3	50	280	2.9	31	2,004	15.8	23	216	6.6																			
750----	31	2,353	-8.3	73	157	11.7	31	2,349	-11.4	56	167	8.2	31	2,569	9.4	48	264	3.7	31	2,534	8.7	49	297	3.3	31	2,546	11.4	27	198	8.7																			
700----	31	2,887	-11.3	65	161	13.0	31	2,884	-14.4	57	164	8.5	31	3,142	6.0	45	273	4.1	31	3,104	4.8	50	281	4.9	31	3,117	6.5	33	191	10.1																			
650----	31	3,450	-14.7	60	164	13.4	31	3,435	-17.5	51	158	9.3	31	3,738	2.2	46	260	4.5	31	3,694					31	3,712	1.3	36	190	10.5																			
600----	31	4,054	-18.6	55	172	13.0	31	4,038	-21.1	46	166	10.3	31	4,387	-1.9	43	282	4.9	31	4,340	-4.7	49	280	11.9	31	4,358	-3.7	38	195	13.4																			
550----	31	4,694	-22.7	49	179	11.1	31	4,669	-24.9	43	161	10.7	31	5,065	-6.2	38	274	6.0	31	5,009	-9.8	47	274	15.2	31	5,035	-8.1			208	14.8																		
500----	31	5,392	-27.0	51	184	13.0	31	5,363	-29.4	39	182	9.9	31	5,814	-11.0	36	286	6.4	31	5,747	-15.1	40	271	14.8	31	5,774	-13.1			225	15.5																		
450----	31	6,066	-31.4	48	193	14.6	31	6,036	-33.4	39	180	14.6	31	6,634	-14.6	35	292	6.3	31	6,570	-20.9	36	265	14.2	31	6,604	-15.7			225	15.7																		
400----	31	6,969	-37.9		206	15.0	31	6,925	-39.4		204	13.2	31	7,492	-22.7		277	12.6	31	7,394	-27.2		273	17.6	31	7,337	-25.2			232	17.7																		
350----	31	7,877	-44.0		222	16.3	31	7,827	-45.1		173	11.9	30	8,460	-29.4		275	15.9	31	8,340	-35.2		274	16.1	31	8,393	-32.8			241	17.9																		
300----	31	8,898	-49.3		225	18.5	31	8,845	-50.1		197	12.8	30	9,542	-38.0		269	20.2	31	9,394	-44.0		270	16.3	31	9,459	-41.3			247	21.6																		
250----	29	10,103	-51.5		225	19.8	31	10,032	-50.5		200	14.6	30	10,772	-47.6		265	25.8	31	10,592	-53.1		280	20.2	31	10,674	-50.2			254	26.2																		
200----	29	11,557	-49.2		215	17.7	30	11,491	-46.8		187	12.6	30	12,212	-57.6		260	27.2	31	12,006	-59.7		276	22.9	31	12,101	-59.0			254	34.4																		
175----	29	12,435	-48.5		211	14.8	30	12,378	-46.1		188	12.0	30	13,049	-61.8		259	29.5	31	12,839	-60.5		284	25.3	31	12,933	-61.2			254	35.8																		
150----	29	13,449	-48.4		214	15.0	29	13,390	-45.9		180	13.8	29	13,997	-64.0		260	25.3	30	13,797	-59.6		285	21.8	31	13,804	-61.5			255	31.1																		
125----	29	14,649	-48.7		215	12.8	28	14,606	-46.3		190	11.0	29	15,110	-65.3		264	28.4	30	14,938	-59.6		288	16.9	31	15,019	-62.3			252	27.4																		
100----	27	16,105	-49.6		206	12.2	28	16,086	-46.8		185	10.5	29	16,466	-65.9		264	22.9	30	16,334	-59.5		290	13.8	27	16,378	-62.0			256	13.8																		
80----	25	17,566	-49.9		194	7.6	28	17,563	-47.5		176	8.9	28	17,823	-64.9		287	11.3	30	17,730	-59.4		304	8.7	25	17,756	-60.9			264	6.6																		
60----	23	19,423	-51.1		190	5.2	26	19,479	-47.6		167	7.4	27	19,594	-61.0		40	3.5	30	19,540	-57.1		342	6.6	25	19,547	-59.6			293	1.2																		
40----	20	20,600	-50.9		167	3.1	26	20,684	-47.6		160	8.2	26	20,740	-57.6		84	8.7	30	20,701	-51.6		22	4.7	25	20,691	-57.9			26	1.4																		
20----	18	22,800	-50.7		140	3.3	26	22,159	-47.4		136	8.4	26	22,162	-53.8		90	14.2	28	22,142	-51.6		50	2.9	25	22,108	-55.0			22	1.4																		
0----	12	24,964	-50.3		109	8.4	24	24,049	-47.2		107	10.1	26	24,049	-49.6		82	13.6	23	24,049	-48.0		305	2.7	21	23,989	-47.3			71	3.3																		
25----	25	25,443	-49.5				20	25,295	-47.2		107	12.6	19	25,236	-47.7		88	16.1	13	25,209	-46.6					25	25,150	-49.3			101	3.1																	
							9	26,666	-47.6		8	26,710	-45.9												8	26,625	-47.4																						

Average monthly values

MAY 1958

See reference note at end of table

RAWINSONDE DATA

Average monthly values

MAY 1958

ST. PAUL IS., ALASKA (1003 MB.)										SALEM, OREG. (1009 MB.)										SALT LAKE CITY, UTAH (871 MB.)										SAN ANTONIO, TEX. (986 MB.)										SAN DIEGO, CALIF. (999 MB.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Standard pressure surface (mb.)	Number of observations	Dynamic height		Temperature		Relative humidity		Wind		Number of observations	Dynamic height		Temperature		Relative humidity		Wind		Number of observations	Dynamic height		Temperature		Relative humidity		Wind		Number of observations	Dynamic height		Temperature		Relative humidity		Wind		Number of observations	Dynamic height		Temperature		Relative humidity		Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed		Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed		Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed		Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed		Direction	Speed	Direction	Speed	Direction	Speed																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
SURFACE	31	10	1.3	87	62	6.8	31	61	10.0	90	231	1.2	31	1,288	11.9	57	159	7.8	31	243	18.7	90	7	2.1	31	124	14.1	91	6	1.7	31	113	41	1.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
1,000---	31	37									278	1.2	31	1,09						31	122					31	113																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

Average monthly values

MAY 1958

YUCCA FLAT, NEV. (879 MB.)							
SURFACE	31	1,196	9.0	53	304	1.2	
1,000----	31	110					
950-----	31	543					
900-----	31	1,001					
850-----	31	1,485	16.9	29	259	1.2	
800-----	31	1,938	14.2	28	198	7.4	
750-----	31	2,535	10.3	30	195	10.0	
700-----	31	3,108	5.8	34	199	10.9	
650-----	31	3,702	.8	39	193	11.5	
600-----	31	4,346	- 4.1	39	195	12.4	
550-----	31	5,018	- 8.7		209	13.4	
500-----	31	5,759	-13.6		222	14.2	
450-----	31	6,542	-19.7		227	16.5	
400-----	31	7,388	-25.4		232	19.1	
350-----	31	8,371	-33.4		236	19.6	
300-----	9	9,434	-41.9		240	22.5	
250-----	30	10,651	-50.8		247	27.2	
200-----	30	12,076	-59.3		250	32.3	
175-----	30	12,907	-61.3		251	33.2	
150-----	30	13,863	-61.3		251	35.1	
125-----	30	14,920	-67.1		251	20.2	
100-----	29	16,381	-61.4		249	12.8	
80-----	29	17,769	-60.6		246	5.8	
60-----	29	19,565	-59.0		85	1.9	
40-----	29	20,714	-56.7		92	2.7	
20-----	29	22,142	-52.9		77	2.5	
30-----	25	24,018	-49.1		66	4.5	
20-----	26	25,226	-47.1		61	7.0	
20-----	26	26,720	-43.9				

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of 98 dynamic meters, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

MAY 1958

Date	Sun's zenith distance								
	A. M.				•	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
	Air mass								
	4. 19	3. 35	2. 51	1. 67	•	1. 67	2. 51	3. 35	4. 19
May									
1-3	---	---	---	---	Cloudy	---	---	---	---
4	0.80	0.91	1.07	1.24	1.45	---	---	---	---
5	.79	.90	1.04	1.20	1.41	1.21	1.00	---	---
6-8	---	---	---	---	Cloudy	---	---	---	---
9	.85	.96	1.08	1.26	1.45	---	---	---	---
10	.84	.96	1.10	1.27	1.49	---	---	---	---
11	---	---	---	---	Cloudy	---	---	---	---
12	---	1.07	1.17	1.25	---	---	---	---	---
13	---	---	---	---	Cloudy	---	---	---	---
14	.84	.94	1.07	1.22	1.45	1.15	---	---	---
15	.90	1.00	1.13	1.24	1.41	---	---	---	---
16	.74	.86	.98	---	---	---	---	---	---
18	---	---	---	---	Cloudy	---	---	---	---
20	.86	.92	1.06	1.21	1.40	---	---	---	---
21-22	---	---	---	---	Cloudy	---	---	---	---
23	---	---	.97	1.13	---	---	---	---	---
24	.76	.88	.98	1.14	1.33	---	---	---	---
25	.63	.73	.88	1.04	1.23	---	---	---	---
26	---	---	---	---	Cloudy	---	---	---	---
27	.77	.87	.99	1.13	1.41	---	---	---	---
28-30	---	---	---	---	Cloudy	---	---	---	---
31	.78	.85	.97	1.21	1.41	1.17	1.02	0.89	0.79
Aver- ages	.80	.91	1.04	1.20	1.40	1.18	1.01	.89	.79

WASHINGTON, D. C. (WBCO)									
	Air mass								
	5.00	4.00	3.00	2.00	•	2.00	3.00	4.00	5.00
May									
8	---	---	---	---	---	0.95	0.79	0.67	0.54
10	---	0.61	---	---	---	---	---	---	---
13	0.70	.91	1.05	1.20	1.39	1.08	.87	.76	.54
14	.50	.77	.91	1.07	---	---	---	.67	---
21	.54	.65	.80	.98	---	---	---	---	---
23	---	---	---	---	---	1.05	.92	.82	---
27	---	---	.89	1.02	---	---	---	---	---
29	.66	.77	.88	1.06	---	1.01	.78	.65	.52
30	---	.71	.86	.97	1.24	.98	.79	.66	---
Aver- ages	.60	.74	.90	1.05	1.32	1.01	.83	.71	.53

BLUE HILL, MASS.									
	Air mass								
	4.89	3.92	2.94	1.96	•	1.96	2.94	3.92	4.89
May									
2	---	---	---	---	1.31	1.06	0.95	0.82	0.70
10	0.87	0.97	1.09	1.25	---	---	---	---	---
13	.71	.84	1.01	1.19	---	---	---	---	---
15	.75	---	---	---	---	---	---	---	---
20	---	---	---	---	---	1.04	.85	.63	.45
21	---	---	---	---	---	1.29	1.18	.95	.64
23	---	---	---	---	---	1.14	.97	.83	.75
24	---	---	---	---	---	1.14	.97	.85	.73
30	.68	.77	.87	1.02	1.37	---	---	---	---
Aver- ages	.75	.86	.99	1.15	1.32	1.11	.94	.78	.65

Date	Sun's zenith distance								
	A M				•	P M			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
TUCSON, ARIZ.									
	Air mass								
	4.56	3.65	2.74	1.83	•	1.83	2.74	3.65	4.56
May									
2-----	----	----	0.97	1.10	1.36	----	----	----	----
3-----	0.71	0.82	.96	1.13	1.32	1.14	0.96	0.82	0.72
5-----	.72	.82	.96	1.14	1.37	----	----	----	----
10-----	.80	.88	1.02	1.19	----	----	----	----	----
12-----	.75	.87	1.01	1.20	1.39	----	----	----	----
13-----	.84	.94	1.04	1.21	1.43	1.26	1.09	.96	.84
14-----	----	----	----	----	1.42	1.20	1.04	.93	.82
15-----	.84	.95	1.07	1.24	1.41	1.21	1.03	.90	.78
23-----	.89	1.00	1.10	1.23	1.45	1.20	----	----	----
31-----	.71	.84	.98	1.14	1.32	1.18	1.03	.90	.80
Aver- ages	.92	1.02	1.13	1.22	1.39	1.23	1.08	.97	.87
	.80	.90	1.02	1.18	1.39	1.20	1.04	.91	.81

LINCOLN, NEBR.									
	Air mass								
	4.80	3.84	2.88	1.92	•	1.92	2.88	3.84	4.80
May									
5	0.50	0.58	0.71	0.91	1.16	---	---	---	---
6	---	---	.72	.91	1.15	0.99	0.92	---	---
10	---	---	---	.95	1.16	.96	.79	0.70	0.60
11	.58	.68	.80	.96	1.15	---	.77	.66	.57
12	.62	.72	.82	.94	---	---	---	---	---
18	.59	.72	.85	1.02	1.19	---	---	---	---
19	.44	.56	.69	.81	---	---	---	---	---
21	---	---	---	---	---	---	---	.57	.54
22	---	---	---	---	---	.85	---	.61	.53
25	.61	.72	.82	---	1.15	.92	.72	---	---
26	.66	.74	---	---	1.12	.89	---	.62	.52
28	.61	.70	.80	.96	---	---	.73	---	---
Aver- ages	.58	.68	.78	.93	1.15	.92	.79	.63	.55

MAUNA LOA OBS., HAWAII									
	Air mass								
	3.36	2.69	2.01	1.34	•	1.34	2.01	2.69	3.36
May									
1	1.19	1.28	1.39	1.50	1.61	---	---	---	---
2	1.21	1.29	1.39	1.49	1.60	---	---	---	---
4	---	---	---	---	1.62	---	---	---	---
7	1.17	1.24	1.34	1.40	---	---	---	---	---
8	1.15	1.23	1.33	1.46	---	1.42	1.30	1.20	1.13
9	1.20	1.28	1.38	1.50	---	---	---	---	---
12	---	---	---	---	1.64	1.46	---	---	---
13	1.22	1.30	1.39	1.51	1.66	---	1.34	1.23	1.12
14	1.24	1.32	1.40	1.50	1.60	1.46	1.34	1.24	1.15
20	1.17	1.25	1.35	1.48	---	---	---	---	---
21	1.21	1.29	1.38	1.49	---	---	---	1.22	1.11
22	1.22	1.30	1.39	1.51	1.64	---	---	---	---
25	---	---	---	1.54	1.65	---	1.37	1.28	1.20
26	1.24	1.32	1.40	1.51	---	1.49	1.35	1.25	1.17
28	1.14	1.23	1.33	1.46	1.61	---	---	---	---
29	1.13	1.23	1.33	1.45	1.62	1.45	1.33	---	---
30	---	---	---	---	1.61	1.43	1.31	1.21	1.11
31	1.14	1.23	1.33	1.45	1.62	1.44	1.32	1.21	1.11
Aver- ages	1.19	1.27	1.37	1.48	1.62	1.45	1.33	1.22	1.13

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station

listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

* Values corresponding to true solar noon

SOLAR RADIATION DATA

MAY 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

								Avg										Avg											Avg
Date-----	7	8	9	10	11	12	13		14	15	16	17	18	19	20			21	22	23	24	25	26	27					
Langleys-----	31	45	243	299	166	261	196	177	236	185	21	267	264	223	191	197	269	278	279	272	335	195	211					220	
Date-----	28	29	30	31	1	2	3																						
Langleys-----	85	230	247	274	225	55	255	196																					

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg										Avg										Avg
Date-----	7	8	9	10	11	12	13		14	15	16	17	18	19	20			21	22	23	24	25	26	27				
Langleys-----	71	97	194	103	254	206	106	147	184	266	62	241	225	284	206	210	99	193	110	156	84	297	310				178	
Date-----	28	29	30	31	1	2	3																					
Langleys-----	154	210	170	222	255	126	100	177																				

Note: Langley is the unit used to denote one gram calorie per square centimeter.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

MAY 1958

Date. . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	*124	*38	347	362	294	*83	*6	400	250	349	*146	*259	347	370	381	151	382	351	325	*63	358	440	434	*281	*208	*224	462	*315	475	482	460	297

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

MAY 1958

	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Ore.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Canton Island	Cape Hatteras, N. C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Ore.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.
1958																														
May 7-----	517	266	752	301	377	451	363	621	100	379	73	597	764	360	175	583	702	650	696	558	722	539	647	480	649	638	725	724	490	499
May 8-----	---	83	704	504	578	345	399	704	139	685	88	619	445	141	706	635	479	558	673	128	438	688	778	507	390	623	762	720	543	677
May 9-----	777	346	732	685	537	332	227	686	528	689	525	587	708	413	---	697	662	725	675	619	755	680	717	397	430	558	770	669	673	645
May 10-----	750	425	578	590	501	421	575	680	726	669	727	566	746	544	613	645	461	682	277	733	699	756	---	627	688	202	617	687	680	623
May 11-----	565	595	607	500	430	514	650	695	403	405	417	129	691	571	299	599	693	303	182	738	600	632	193	---	661	266	298	731	205	648
May 12-----	503	221	431	586	455	514	685	661	563	430	469	509	245	720	509	751	684	544	713	493	713	190	430	461	620	624	620	731	478	133
May 13-----	759	61	721	728	686	441	718	362	468	731	363	517	793	388	548	736	680	750	731	348	732	768	582	425	385	660	652	---	450	381
Average-----	645	285	646	556	509	431	517	630	418	570	380	504	627	448	475	664	623	602	564	517	666	608	558	483	546	510	635	706	503	515
May 14-----	795	43	698	698	687	641	208	701	491	731	452	474	826	254	717	669	607	739	714	570	652	764	750	437	325	646	749	---	363	732
May 15-----	741	603	734	690	702	513	332	630	415	719	694	506	797	739	---	478	422	722	718	370	639	556	741	545	462	628	753	---	675	737
May 16-----	645	640	710	672	683	---	---	680	85	720	65	560	702	744	584	759	653	733	706	387	733	723	784	463	595	634	775	---	726	739
May 17-----	794	711	415	672	683	---	---	636	596	709	564	458	802	386	662	447	579	591	690	604	563	723	780	400	640	623	740	---	743	735
May 18-----	647	699	488	421	455	676	634	749	573	705	573	609	772	225	(640)	559	652	656	724	732	578	740	---	542	565	635	644	---	762	740
May 19-----	709	204	109	607	217	721	353	785	459	702	494	604	784	164	472	673	701	667	724	707	663	782	703	---	614	644	347	---	728	647
May 20-----	758	210	715	661	332	522	421	761	336	659	330	390	345	574	187	733	678	670	684	740	743	787	643	472	727	555	364	---	686	668
Average-----	727	444	553	631	527	615	386	706	422	706	453	514	718	441	(544)	617	610	683	709	587	653	728	734	476	561	624	625	---	669	714
May 21-----	760	474	576	625	741	487	620	684	718	526	704	554	574	251	571	742	642	701	655	740	749	783	499	327	733	624	660	---	629	595
May 22-----	667	743	549	551	725	570	451	783	655	575	620	520	817	483	650	---	607	470	148	627	364	791	654	503	708	347	535	---	821	744
May 23-----	727	683	351	382	682	601	304	730	684	713	681	530	644	429	419	504	488	728	557	379	781	744	679	449	684	656	346	---	732	664
May 24-----	713	676	---	422	677	468	486	731	748	559	749	495	774	732	391	712	175	192	745	682	709	717	666	501	684	657	464	---	622	651
May 25-----	720	674	---	563	620	686	325	742	98	626	92	513	399	399	(179)	633	755	618	736	730	701	721	810	561	601	665	294	---	616	616
May 26-----	658	655	695	258	587	399	432	743	428	731	423	516	52	593	478	781	710	464	747	734	742	718	809	395	695	668	768	---	627	627
May 27-----	747	732	643	138	428	523	188	803	461	731	457	533	668	755	701	681	370	405	700	648	609	702	806	553	695	655	702	---	721	721
Average-----	713	662	563	420	637	533	401	745	542	637	532	523	561	520	(484)	676	535	511	613	649	665	739	703	470	678	610	538	---	701	660
May 28-----	607	227	705	582	659	516	325	758	197	528	130	430	746	262	(608)	501	765	520	766	650	654	686	701	685	613	640	688	---	693	693
May 29-----	685	270	693	445	764	---	234	576	610	560	661	534	831	344	634	754	512	634	670	715	614	747	814	545	701	577	750	---	622	622
May 30-----	527	534	704	491	703	581	420	587	651	488	625	438	838	336	673	699	395	587	702	728	627	573	708	641	607	660	705	---	378	378
May 31-----	797	690	641	494	494	643	277	---	696	272	601	575	843	542	669	297	613	605	720	743	388	774	666	611	631	639	750	---	294	294
June 1-----	811	411	718	687	639	560	546	411	563	543	532	582	834	64	723	311	503	615	581	793	615	596	615	596	615	541	723	---	717	717
June 2-----	809	634	447	204	626	487	439	277	152	435	138	587	520	293	442	319	380	440	416	660	782	504	686	645	689	525	685	---	442	442
June 3-----	745	572	508	346	413	469	324	249	769	158	745	554	151	788	499	734	706	134	734	715	725	769	676	629	639	699	504	---	99	99
Average-----	711	477	631	464	614	542	367	476	520	426	490	528	681	376	(607)	516	553	477	656	692	557	692	695	622	648	612	686	---	464	464

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

MAY 1958

	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyo Kern, Calif.	Lake Charles, La.	Lander, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Phoenix, Ariz.	Portland, Me.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	
1958																														
May 7-----	143	445	712	839	661	81	751	512	297	643	535	357	236	671	650	600	---	---	120	65	(203)	97	639	497	85	105	269	490	413	694
May 8-----	668	672	674	831	617	164	734	806	515	409	583	285	404	639	721	700	---	---	129	185	661	534	406	702	---	691	727	496	526	526
May 9-----	337	627	648	789	430	685	710	771	609	96	168	233	529	633	733	525	---	---	650	591	630	85	207	792	440	464	741	351	570	435
May 10-----	491	611	414	535	349	755	549	392	712	204	423	257	397	647	661	605	---	---	730	726	695	323	706	703	714	611	741	348	558	480
May 11-----	280	420	470	765	556	624	299	420	694	611	490	291	533	228	322	639	---	---	218	208	665	217	703	665	375	324	734	239	509	695
May 12-----	603	456	168	825	660	772	663	791	681	633	669	620	399	732	483	563	---	---	553	639	665	616	590	816	460	444	708	645	594	475
May 13-----	716	723	716	874	581	551	664	858	481	611	713	707	619	613	534	378	---	---	543	757	534	747	327	800	448	712	566	759	433	394
Average-----	463	565	543	780	551	519	639	650	570	458	483	393	445	599	586	573	---	---	421	453	(581)	374	511	711	420	479	642	475	515	529
May 14-----	703	709	621	880	649	103	770	820	230	583	716	714	310	684	461	591	---	---	581	445	---	702	192	825	408	717	563	758	530	167
May 15-----	671	715	411	855	385	466	779	759	236	497	544	661	233	627	460	524	---	---	609	37	---	708	280	828	347	688	409	674	633	562
May 16-----	446	603	329	875	449	699	767	631	322	500	605	672	262	677	521	---	---	---	90	278	431	605	552	830	83	341	460	720	588	557
May 17-----	579	689	511	869	313	773	768	543	606	588	660	672	304	604	524	---	---	---	521	566	479	588	475	840	388	646	744	722	409	598
May 18-----	537	476	475	---	316	771	756	800	733	441	671	693	528	655	495	684	---	---	399	347	717	466	282	831	539	616	785	740	572	339
May 19-----	368	198	659	---	370	770	756	338	672	74	577	699	658	690	506	472	---	---	420	396	---	228	750	798	527	558	778	749	646	658
May 20-----	328	226	785	---	318	704	528	829	283	655	602	512	463	623	430	726	---	---	198	377	387	418	759	720	551	194	761	495	640	248
Average-----	519	517	542	870	400	612	732	674	440	477	602	660	394	660	485	600	---	---	403	349	503	531	472	810	406	537	643	694	574	447
May 21-----	695	691	(698)	---	497	632	551	842	600	637	534	713	---	675	728	735	---	---	642	742	514	732	748	716	724	674	755	688	639	553
May 22-----	674	683	331	---	388	569	747	768	505	651	621	672	---	---	350	742	---	---	671	617	580	699	723	793	661	649	398	707	707	659
May 23-----	589	622	714	---	528	631	662	395	579	601	728	671	---	554	66	717	---	---	539	653	644	675	595	814	737	603	531	651	620	674
May 24-----	217	690	658	---	---	593	670	804	610	607	688	692	---	538	198	704	---	---	752	786	617	620	459	809	757	384	741	608	503	715
May 25-----	464	614	632	---	677	591	746	438	709	533	738	748	---	677	602	467	---	---	102	73	683	492	714	814	234	316	521	747	679	554
May 26-----	529	660	682	---	572	634	782	849	724	552	738	758	271	635	613	674	---	---	366	511	669	695	724	824	625	405	755	733	450	674
May 27-----	614	417	597	---	606	734	772	816	692	308	757	760	418	557	379	---	---	---	301	765	---	530	653	775	685	698	667	749	676	701
Average-----	540	625	(616)	---	545	626	704	702	631	556	689	716	---	608	419	673	---	---	482	592	618	635	659	792	632	533	624	698	611	647
May 28-----	566	593	696	---	472	693	792	661	698	453	744	749	---	683	307	662	---	---	333	515	(727)	641	510	820	183	493	728	773	692	709
May 29-----	738	750	713	---	528	729	641	856	706	593	529	550	---	685	298	680	---	---	699	831	686	772	707	---	617	713	405	568	626	647
May 30-----	663	625	679	---	629	658	730	834	643	449	727	718	---	619	503	700	---	---	702	750	511	705	728	---	626	673	631	749	305	704
May 31-----	654	528	384	---	697	679	732	520	260	584	521	608	---	396	488	661	689	---	665	637	202	665	695	---	627	699	670	682	96	703
June 1-----	532	685	390	---	700	729	772	235	400	460	494	557	---	431	492	600	391	---	670	667	---	416	746	771	338	671	344	639	307	702
June 2-----	592	679	273	---	639	734	813	299	305	611	704	530	---	457	665	632	474	---	133	257	---	524	718	---	70	518	493	734	173	655
June 3-----	526	541	436	---	609	709	820	702	623	663	699	687	---	251	596	725	553	---	639	692	---	693	725	774	764	404	246	722	258	737
Average-----	610	629	510	---	611	704	757	587	519	545	631	628	---	503	478	666	527	---	549	621	(532)	631	690	788	461	596	502	695	351	694

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

MAY 1958

	Santa Maria, Calif.	S. Ste. Marie, Mich.	Savville, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Seattle, Wash. (U of W.)	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Silver Hill Obs.)
1958													
May 7-----	263	566	104	99	480	523	725	537	109	653	504	(725)	88
May 8-----	382	286	143	112	666	681	670	577	578	708	687	753	(467)
May 9-----	139	729	703	385	666	627	388	681	454	692	698	764	(543)
May 10-----	422	438	769	491	319	266	543	700	674	617	698	657	(563)
May 11-----	654	797	---	455	235	183	745	174	301	135	724	726	462
May 12-----	808	813	740	391	591	554	722	337	756	599	774	722	(665)
May 13-----	835	772	773	309	721	639	600	583	753	607	761	664	729
Average-----	500	629	539	320	525	496	628	513	518	573	692	(716)	(502)
May 14-----	808	---	603	240	719	709	684	711	652	510	773	706	706
May 15-----	---	794	78	137	684	714	611	721	201	698	771	565	480
May 16-----	660	799	165	250	726	755	616	723	742	634	737	773	593
May 17-----	735	577	584	526	735	747	658	747	696	657	770	649	528
May 18-----	818	363	243	210	649	604	173	737	602	595	760	673	644
May 19-----	735	252	423	282	662	679	202	679	220	447	733	(670)	308
May 20-----	590	538	324	480	671	665	514	720	688	566	709	759	443
Average-----	724	554	345	306	692	696	494	720	543	587	750	(685)	529
May 21-----	739	708	763	567	723	768	763	710	739	535	608	742	714
May 22-----	497	714	682	411	689	629	633	702	418	378	688	761	699
May 23-----	786	750	623	545	253	276	727	628	782	232	750	746	356
May 24-----	820	318	801	611	539	557	634	715	350	500	684	---	(473)
May 25-----	847	---	95	199	706	632	578	701	334	457	719	732	251
May 26-----	851	687	383	580	753	687	672	723	801	560	766	693	585
May 27-----	855	427	492	610	337	296	654	677	776	682	717	653	742
Average-----	771	601	548	503	572	549	666	694	600	478	705	721	(546)
May 28-----	826	619	732	493	551	499	162	543	320	690	703	(738)	462
May 29-----	769	504	812	218	553	497	722	651	780	654	740	(721)	742
May 30-----	772	356	764	447	632	457	708	619	667	632	485	723	733
May 31-----	800	436	613	357	327	327	692	232	500	563	784	(704)	666
June 1-----	757	583	636	431	656	632	700	751	596	587	797	---	645
June 2-----	811	858	235	171	602	599	528	518	346	587	791	---	510
June 3-----	855	559	790	619	599	623	666	722	779	633	710	(719)	210
Average-----	799	559	655	411	564	519	597	577	570	621	716	(721)	567

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, May 1958B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), May 1958.

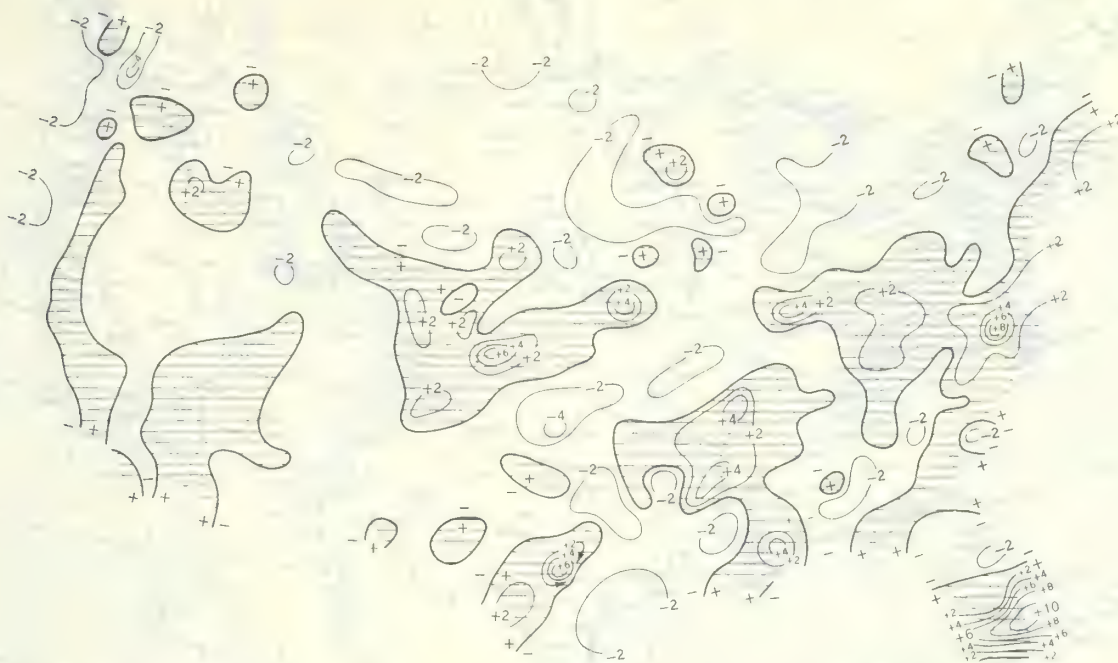
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), May 1958.



Chart III. A. Departure of Precipitation from Normal (Inches), May 1958.



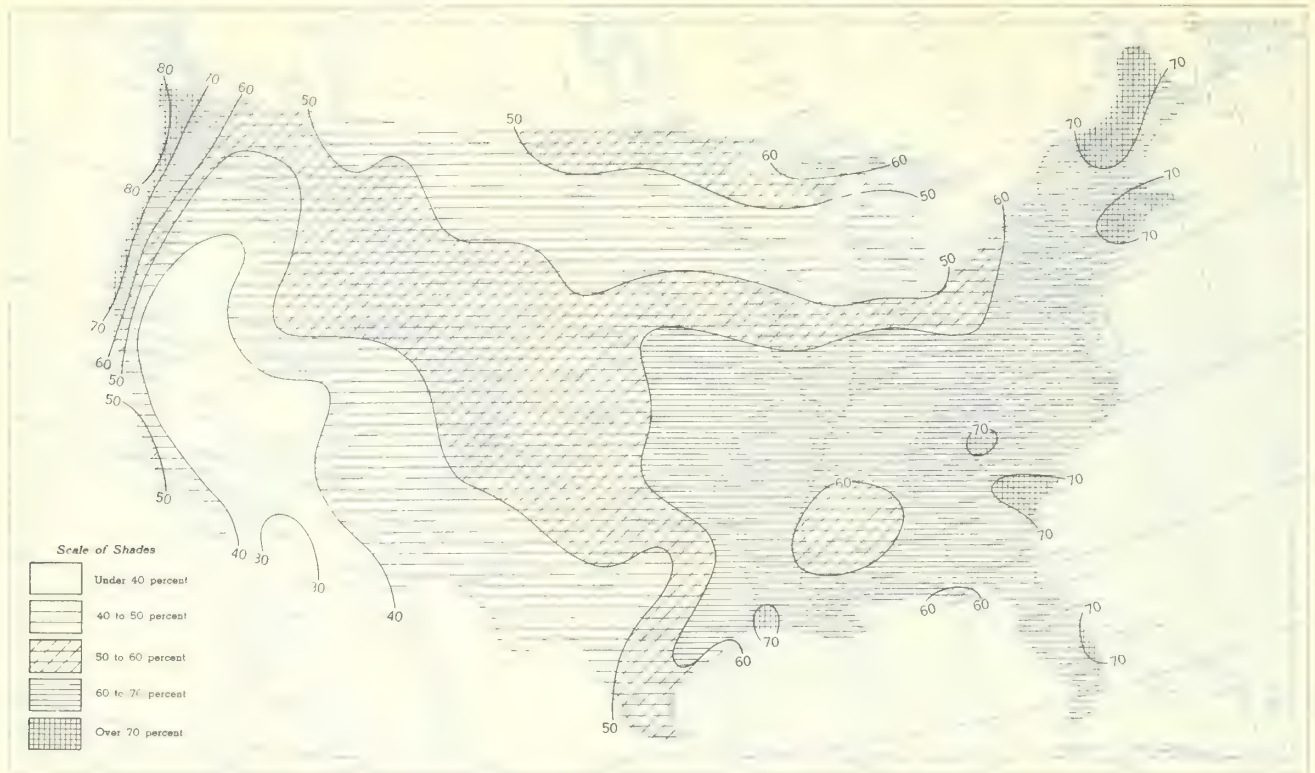
B. Percentage of Normal Precipitation, May 1958.



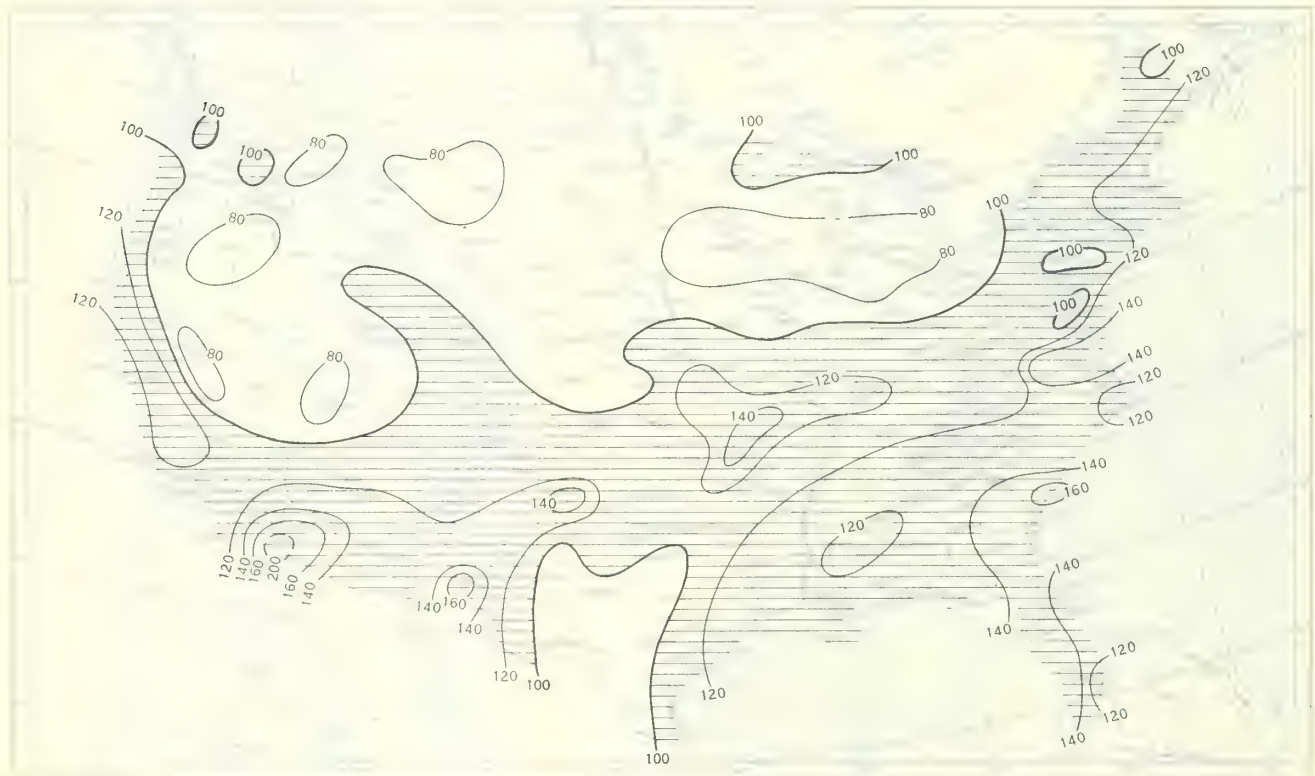
Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

MAY 1958

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, May 1958.



B. Percentage of Normal Sky Cover Between Sunrise and Sunset, May 1958.

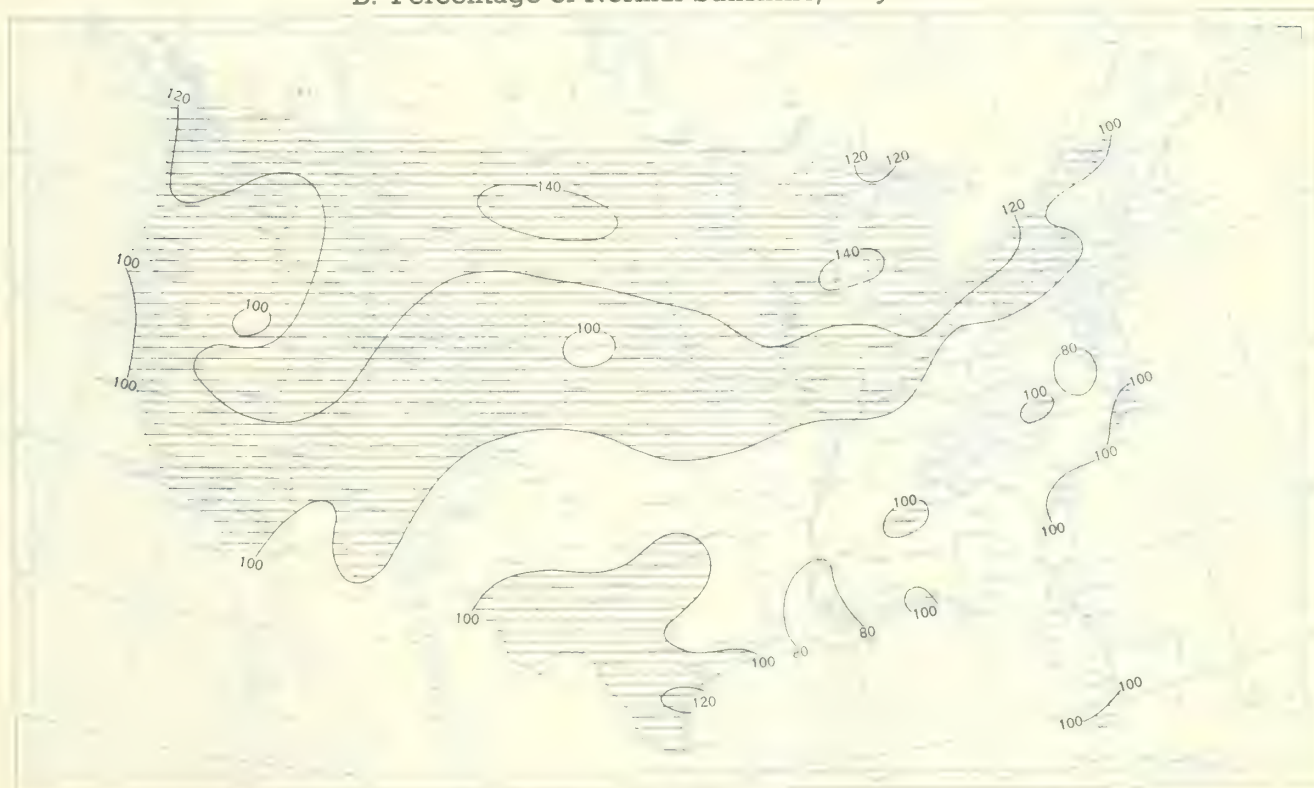


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, May 1958.



B. Percentage of Normal Sunshine, May 1958.



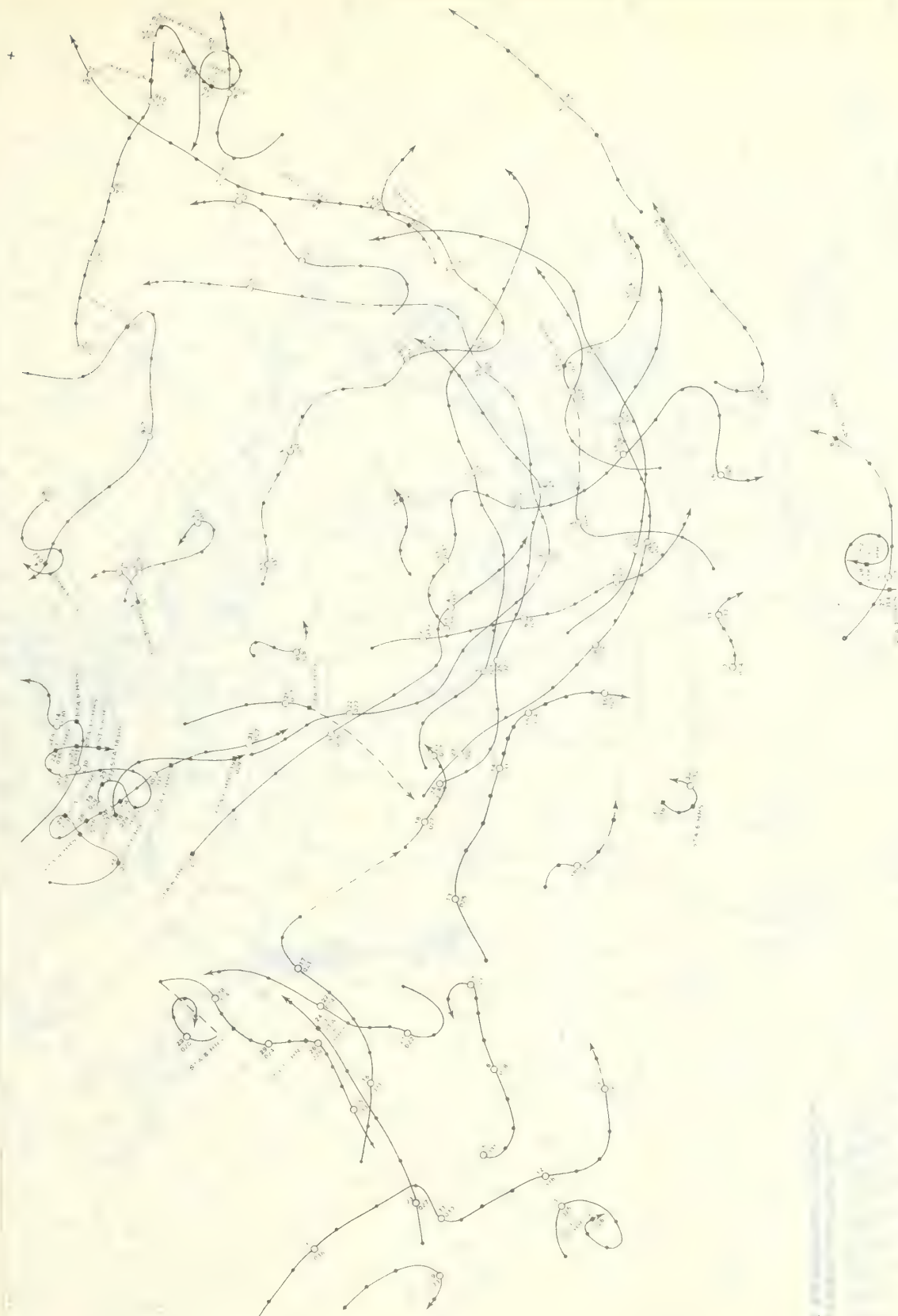
A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, May 1958. Inset: Percentage of Mean Daily Solar Radiation, May 1958. (Mean based on period 1951-55.)



Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. ⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. The inset shows the percentage of the mean based on the period 1951-55.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, May 1958.



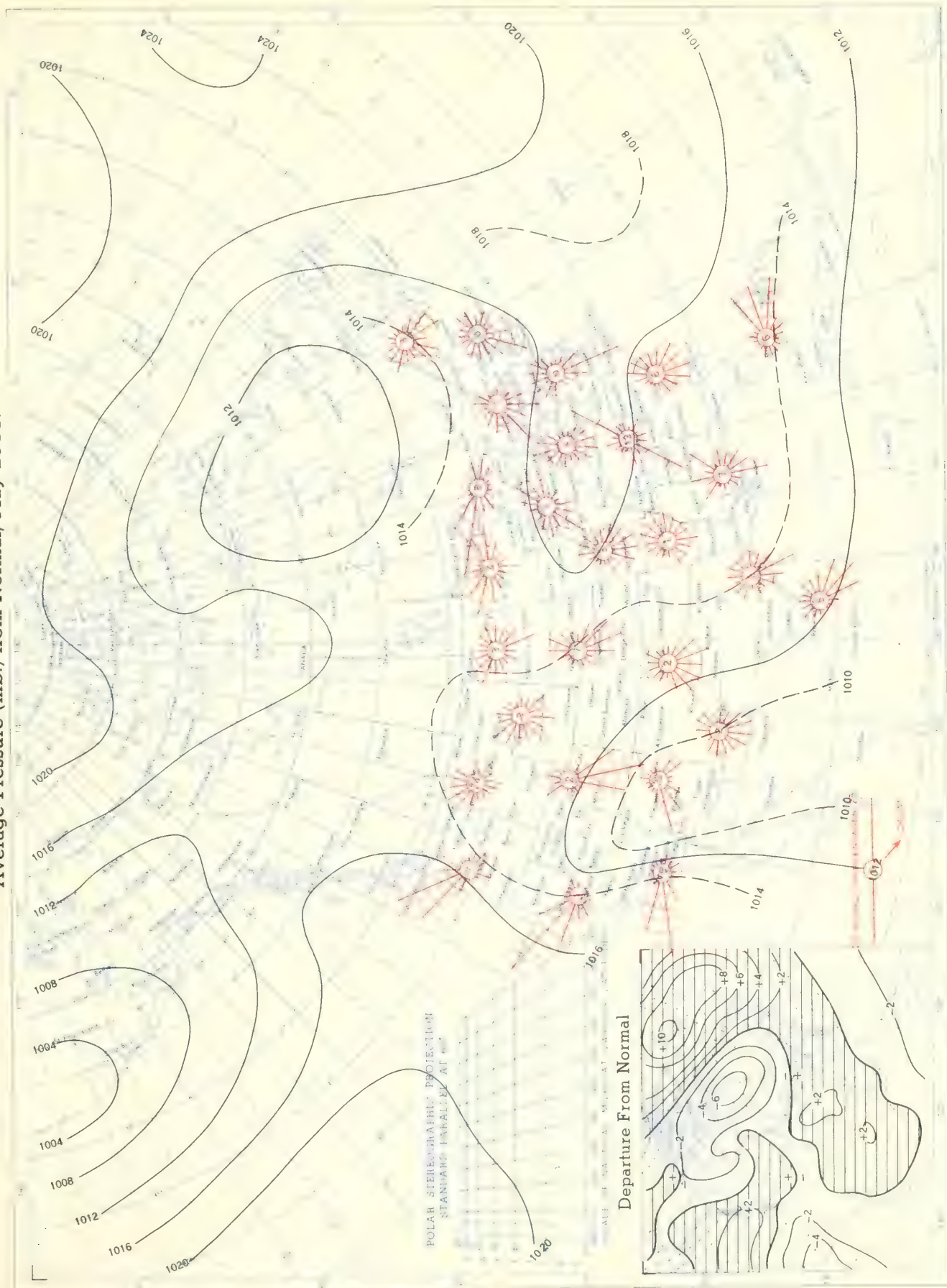
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, May 1958.



Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

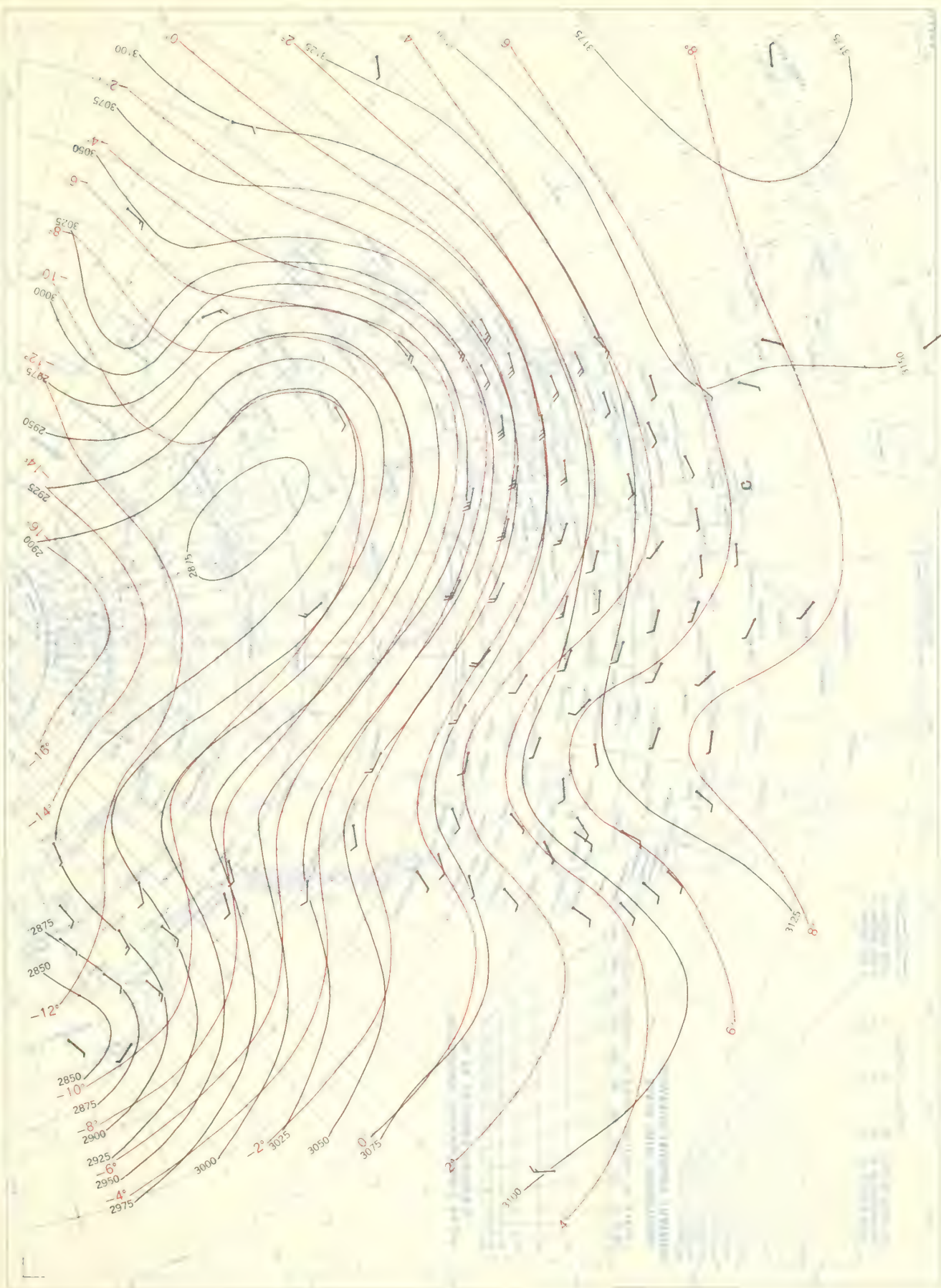
Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, May 1958. Inset: Departure of Average Pressure (mb.) from Normal, May 1958.



Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

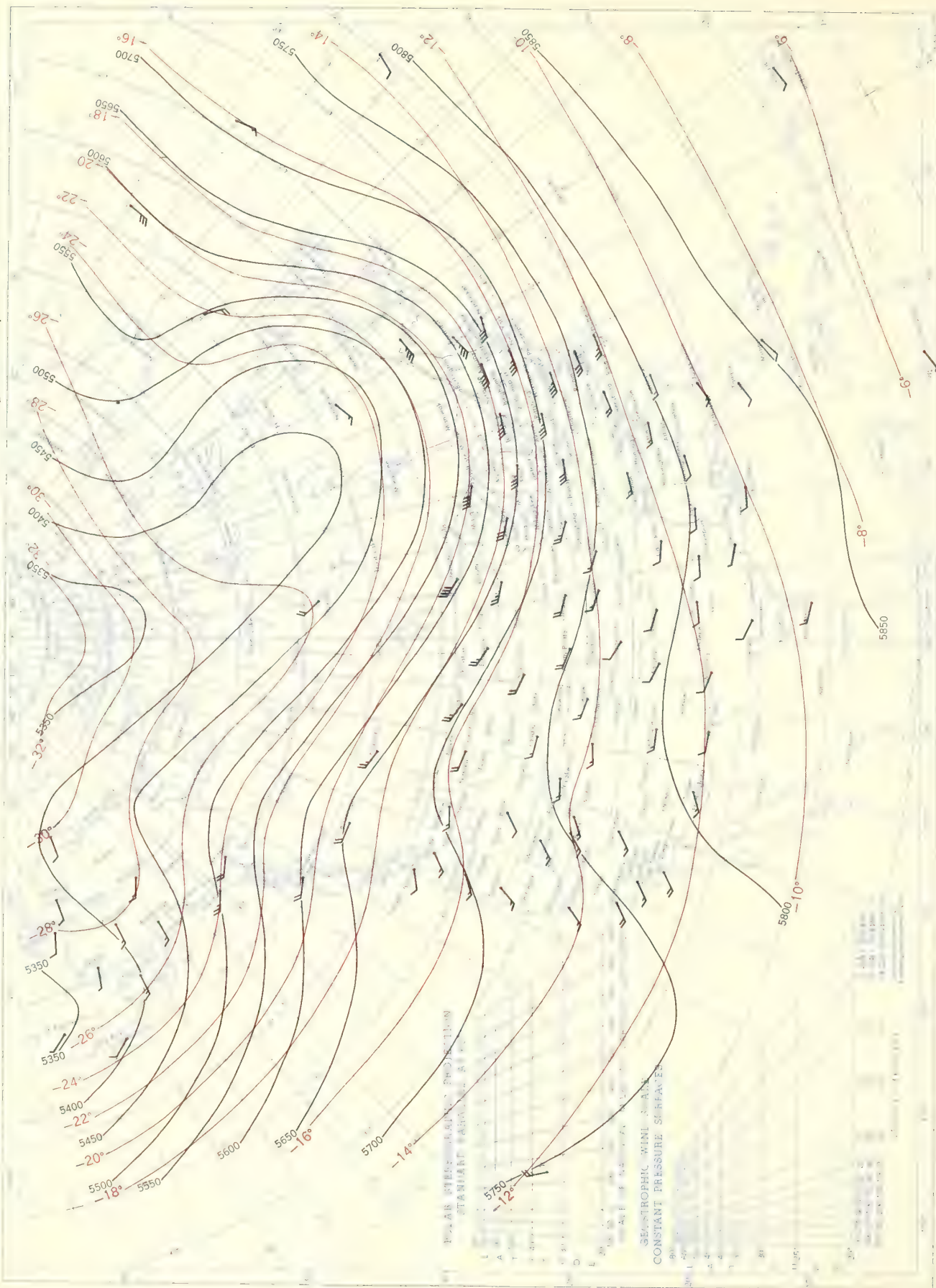


Chart XIII. 700-mb. Surface, 1200 GMT, May 1958. Average Height and Temperature, and Resultant Winds.



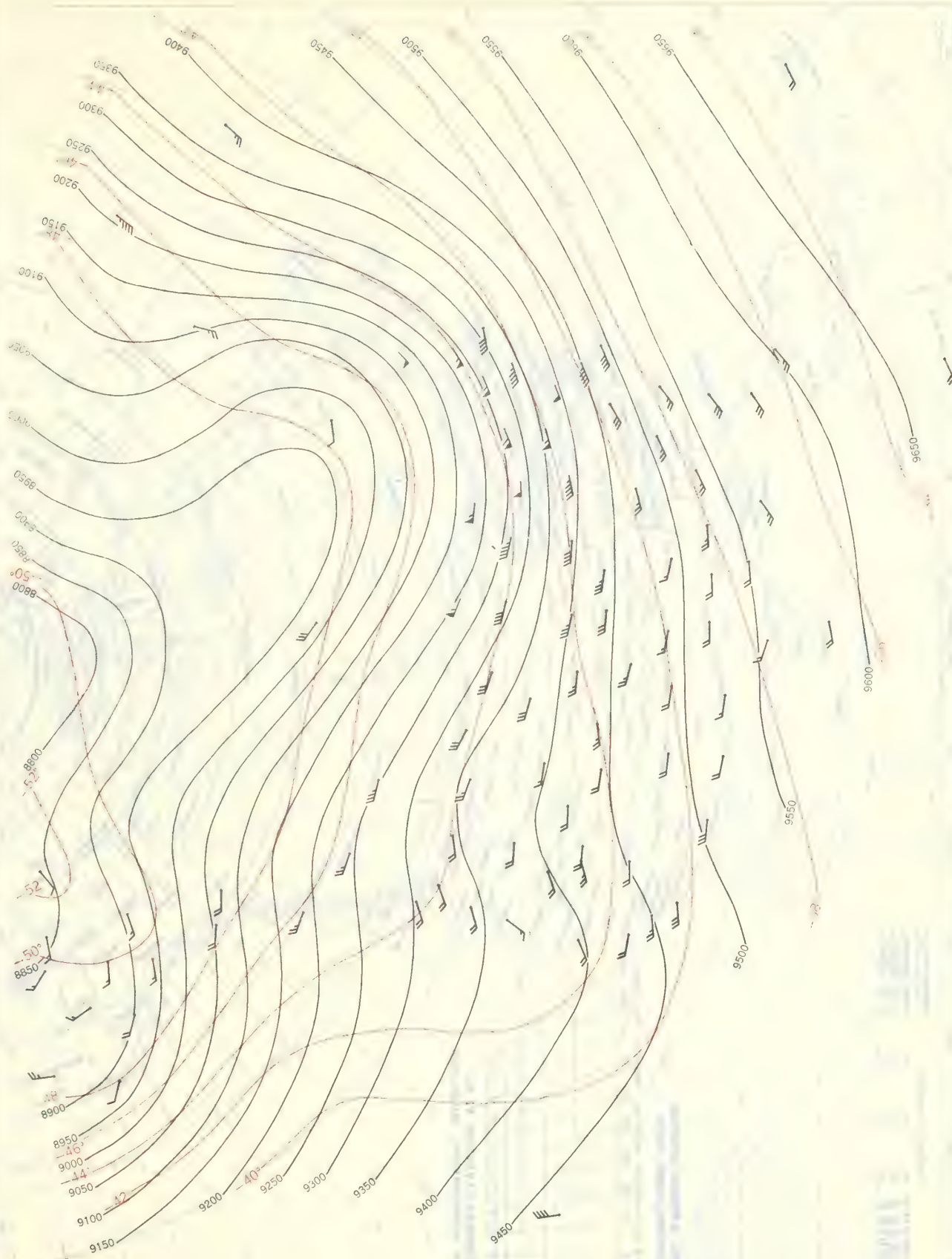
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, May 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, May 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, May 1958. Average Height and Temperature, and Resultant Winds.

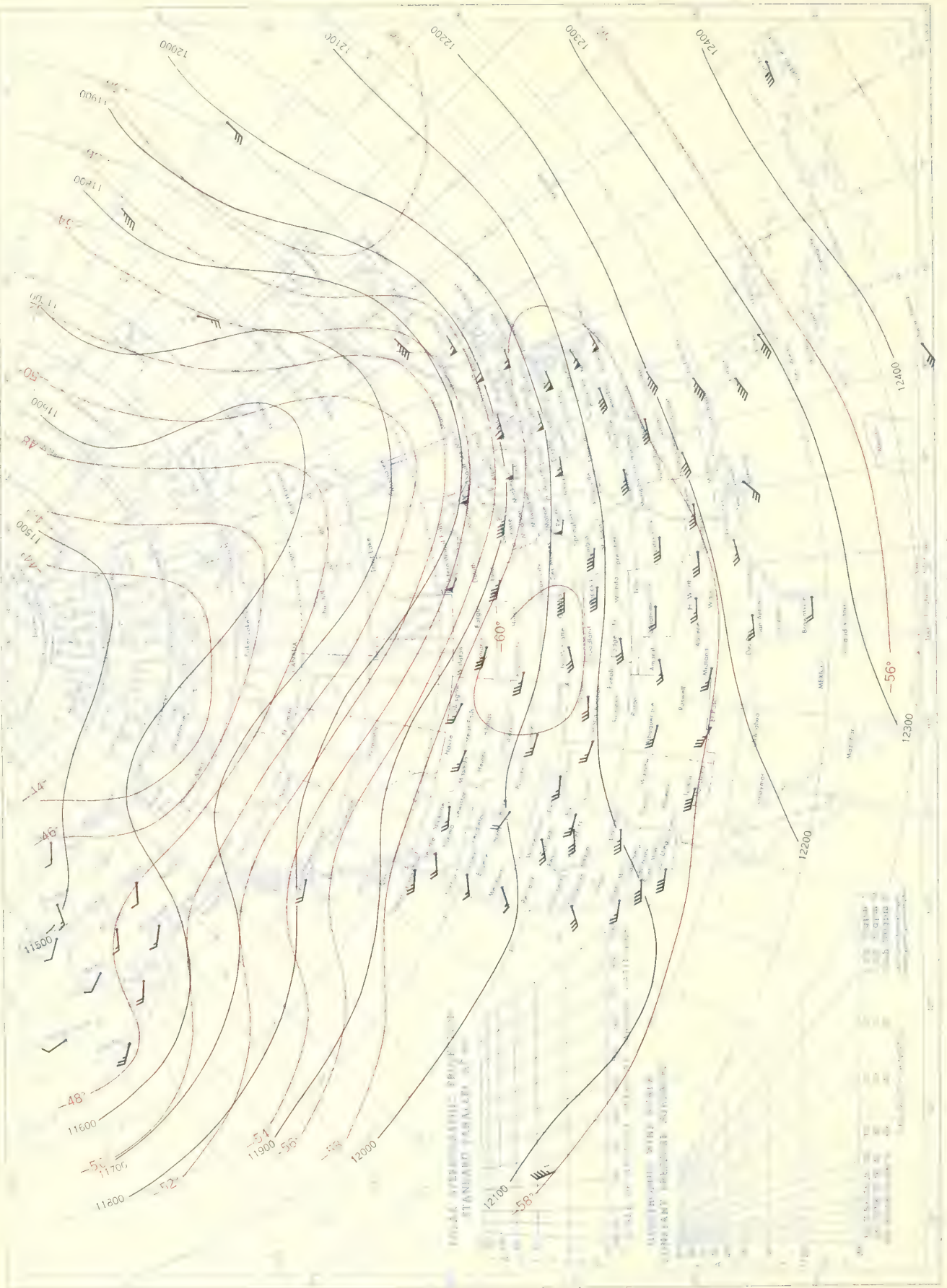


Chart XVII. 100-mb. Surface, 1200 GMT, May 1958. Average Height and Temperature, and Resultant Winds.

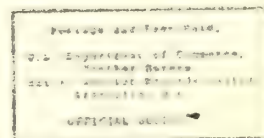


See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE
SINCLAIR WEEKS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

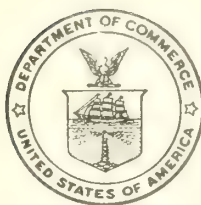
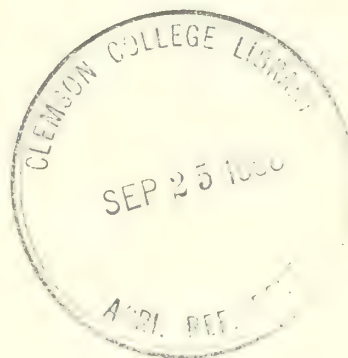
CLIMATOLOGICAL DATA

NATIONAL SUMMARY



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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 6

JUNE 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

Record breaking cool weather in the Northeast, heavy rains, floods and an unusually large number of severe local storms in the midcontinent area, and the season's first tropical storm were the month's weather highlights. Other features included abnormally warm weather in the Pacific Northwest, 200 percent of normal precipitation in northern California, parts of Oregon and Idaho, and beneficial rains in much of the North Central Interior which had been in the grip of a dry spell since the first of the year. Irrigation water supplies were mostly satisfactory in the Far West and soil moisture generally was ample to excessive east of the Rockies. The Nation's crop prospects at the end of June were good to excellent, except only fair in some dry areas of the North Central Interior and in some areas with excessive moisture in the South.

TEMPERATURE.--June temperatures averaged well above normal in the lower Rocky Mountain region, along the Pacific coast, and in the Pacific Northwest, well below normal in the northeastern quarter of the Nation, and about normal elsewhere.

Temperatures remained below normal virtually all month from the upper Mississippi Valley eastward. As a result of this persistent abnormal coolness, some stations had their lowest average temperatures on record for June and the month was among the coolest Junes throughout the area. June averages were the lowest on record at Hartford, Conn., 62.8°; Caribou, Maine, 54.5° (20-year record); Providence, R. I., 62.5°; Williamsport, Pa., 63.2°; Green Bay, Wis., 58.8°; and Albany, N. Y., 62.1°. Albany's average was the lowest there since 1816, a famous year in the Northeast often referred to as "the year without a summer". On the 9th several stations recorded their lowest temperatures on record for June. Among these were Hartford, Conn., 38°; Caribou, Maine, 30°; Erie, Pa., 38°; and Harrisburg, Pa., 43°.

In contrast this June was among the warmest of record in the Pacific Northwest, and was actually the warmest at Seattle, Wash., where the monthly average was 65.7°. The week ending the 23d was particularly warm, with weekly averages ranging up to 12° above normal, and maximum temperatures ranging from 95° to 103° in eastern Washington the latter half of the week. The weather was unusually warm in the lower Great Plains early in the month.

Extremely low temperatures for so late in June were recorded in the midcontinent area from about the 24th to the 27th. Minima generally ranged from the 50's in Texas and the lower Mississippi Valley to the 30's and 40's near the Canadian Border. A low of 25° was recorded at Pactola Dam, S. Dak., and some damage to gardens occurred in spotted areas of that State. Cheyenne, Wyo., reported snow flurries on the 25th.

PRECIPITATION.--The month's precipitation regime was featured mainly by the heavy rains in the Ohio and middle and lower Mississippi Valleys where monthly totals ranged from 4 to over 10 inches which was 150 to 200 percent of normal at many

stations. Unusually heavy rains with totals up to 12 inches fell in northern Indiana during the period June 8 to 15. These rains resulted in near record flooding in the Wabash and White River Basins with millions of dollars crop losses.

Rains in the North Central Interior came at intervals throughout the month, and greatly helped relieve the soil moisture shortage resulting from the dry spell there since the first of the year. Monthly totals generally ranged from 2 to 4 inches. At the end of the month, however, Wisconsin reported the soil generally too dry and lakes and streams low. Also, moisture was short in southeastern South Dakota, northern North Dakota, and northeastern Montana. Precipitation in the dry areas of Montana and North Dakota for the period January 1 to June 30 was about 50 percent of normal.

Heavy rains, with monthly totals ranging from 6 to over 10 inches, fell in parts of Ohio, Illinois, Missouri, Arkansas, Oklahoma, Louisiana, and Mississippi. Amounts in these States generally were better distributed through the months than they were in Indiana, and flooding was lighter except in extreme local areas.

Alma, the first tropical storm of the 1958 season, made her appearance in the southwestern Gulf of Mexico on the weekend of the 15th. The storm moved across northern Mexico into southwestern Texas where heavy rains fell on the 16th. Storm totals ranging up to 20 inches or more caused locally damaging floods.

DESTRUCTIVE STORMS AND UNUSUAL WEATHER PHENOMENA.--The month's 157 tornadoes was the second greatest number of record for June, being topped only by 164 in 1957. The worst outbreak of the month occurred in northwestern Wisconsin on the 4th when these storms took a toll of 27 lives, injured an additional 169, and damaged or destroyed property to the extent of \$9 million or more. On the same date a tornado was responsible for the death of 2 persons and about \$400 thousand property damage in Stearns County, Minnesota. In Eldorado, Kans., and vicinity on the 10th, a tornado killed 15 persons, injured 50, and caused damages estimated at about \$3 million. Rensselaer, Ind., had the unusual misfortune to be visited twice in the same day by these storms, at 5:30 p.m. and again at 9:00 p.m. on June 8. During the passage of the tornado at Eldorado, Kans., on the 10th, a lady was sucked outside through a window and carried about 60 feet, and beside her was a broken phonograph record entitled "Stormy Weather."

Hail, unusually frequent in the midcontinent area, was the most damaging weather element of the month, and wind was often a contributing factor to the damage. The worst hailstorm of the month probably occurred on the 7th in eastern Montana, with losses estimated at about \$4,500,000, of which \$3,750,000 was in the Billings area. Other hailstorms causing losses of a million dollars or more were reported from eastern Iowa on the 8th, the southwestern corner of Kansas on the 10th, southwestern Nebraska on the 11th, the Nebraska Panhandle and northeastern Oklahoma both on the 15th, the Nebraska Panhandle

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

JUNE 1958

again on the 18th, extreme western Kansas on the 19th, the Texas Panhandle on the 20th, and north-western South Dakota on the 30th. During the hailstorm in northeastern Oklahoma on the 15th, hailstones ranged up to 2 inches in diameter and winds up to 60 m.p.h.

Hailstones up to baseball size killed several hundred lambs and sheep in Butte County, South Dakota, on the 7th. On the 8th hail at Sweetwater, Tex., was accompanied by winds of 85 m.p.h., and gusts up to 110-m.p.h. Hailstones up to 4 inches

in diameter were reported to have killed livestock valued at \$5,000 in Carbon County, Montana, on the 18th.

Waterspouts were noted off the Florida coast on the 22d, 25th, 28th, and 30th, and one off the Baldwin County shore of Alabama on the 6th.

Philadelphia, Pa., recorded a 73-m.p.h. wind on June 11, a new record there, and on the 25th Rochester, N. Y., recorded a 103-m.p.h. gust, a new record for that station.

CONDENSED CLIMATOLOGICAL SUMMARY

JUNE 1958

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Ozark	102	13	Opelika	49	30	Robertsdale 7E	11.39	Huntsville Sub. Sta.	1.55
Arizona	Bouse	116	28	2 Stations	25	13+	Canelo 1NW	4.89	15 Stations	.00
Arkansas	4 Stations	120	14+	Eureka Springs	41	26	Jessieville	11.74	Pocahontas 1	1.25
California	2 Stations	121	28+	White Mts 2	13	3	Pit River PH 5	6.54	176 Stations	.00
Colorado	Las Animas 1N	104	29+	Fraser	20	13+	Arriba	6.48	3 Stations	.00
Connecticut	2 Stations	88	30	Coventry	29	18	Mead Pond Reservoir	4.91	Baltic	1.29
Delaware	do	94	26+	Georgetown 5SW	43	7	Milford	5.63	Dover	3.40
Florida	do	102	18	2 Stations	56	6	Cape Sable Ranger Sta.	14.59	Grape Hammock	1.09
Georgia	Louisville	103	13	Blairsville Exp. Sta.	42	28	Douglas 2NNE	10.13	2 Stations	.78
Idaho	Grand View	103	23	Obsidian 2NNW	22	28	Elk City	8.67	Blackfoot	.32
Illinois	Quincy	98	8	Waukegan	38	6	Danville Sewage Plant	10.94	Rockford 6ENE	2.67
Indiana	Johnson Experiment Fm.	97	3	Winamac	36	6	Winchester Airport	14.62	Evans Landing Dam	3.53
Iowa	Sioux City WB AP	99	29	Saratoga 2E	36	6	Ft Dodge	10.28	Glenwood GSE	1.09
Kansas	Kingman	106	13	2 Stations	40	26	Coldwater	10.85	Sublette	.93
Kentucky	Hickman 1E	97	15+	3 Stations	43	8+	Paducah CAA Airport	9.52	Paintsville	1.79
Louisiana	3 Stations	99	18+	Arcadia	54	28	Port Sulphur	14.73	Ponchartrain Causeway	1.45
Maine	4 Stations	47	30+	Squa Pan Dam	26	7	Fort Kent	4.94	Bridgton 1NNW	1.23
Maryland	Cambridge 4W	95	11	Oakland 1SE	31	7	Elkton	6.81	Ocean City	1.39
Massachusetts	2 Stations	92	30	2 Stations	30	18+	Ware 2	3.80	Birch Hill Dam	.85
Michigan	3 Stations	91	30	Gaylord Conservation	22	6	South Haven Exp. Farm	7.15	Muskegon WB AP	1.24
Minnesota	2 Stations	93	30	Isabella 1W	27	11	Pelican Rapids	7.38	Colleeville St. John U.	1.55
Mississippi	Utica	100	13	3 Stations	52	27	Pascagoula High School	17.91	Brooksville Exp. Sta.	2.04
Missouri	Kennett Radio KBOA	99	5	do	43	27+	Jackson	12.95	Burlington Jct.	1.55
Montana	2 Stations	100	27	Kings Hall	23	9	Gibson Dam	8.59	Chinook 15N	.90
Nebraska	do	105	30+	2 Stations	33	25	Hay Springs 12S	6.09	Spiker 4NW	.65
Nevada	North Las Vegas DOX	113	27	Ruth	19	4	Orovada	2.90	13 Stations	.00
New Hampshire	3 Stations	90	30	Grafton	25	7	Bethlehem	5.00	MacDowell Dam	.87
New Jersey	Indian Mills 2W	94	11	Layton 3NW	29	7	Marlton 1W	5.98	Phillipsburg Bridge	1.64
New Mexico	2 Stations	108	24+	Gavilan	21	13	Black Lake	5.02	5 Stations	.00
New York	New York Laurel Hill	91	26	Speculator	25	18	Linden	8.21	Kingston Gas Plant	.84
North Carolina	Goldsboro	101	11	2 Stations	40	28+	Sloan 3S	13.39	Canton 1SW	.81
North Dakota	3 Stations	96	28	do	27	5	Abercrombie 3NW	8.60	Flaxton	.80
Ohio	4 Stations	93	13+	Millport 2NW	31	7	Versailles	13.97	2 Stations	2.70
Oklahoma	2 Stations	112	10	Kenton	43	26	Heyburn Dam	14.38	Guymon	.86
Oregon	do	106	23+	Fremont	26	28	Government Camp	7.58	Arlington	.20
Pennsylvania	4 Stations	92	10+	Coudersport 3NW	26	7	Titusville Water Works	8.58	Hooverville	2.00
Rhode Island	Providence WB AP	87	30	Kingston	36	18	Providence WB AP	3.15	Woonsocket	1.62
South Carolina	Johnston 2SSW	106	15	Caesars Head	48	23	Pinopolis Dam	13.65	Clarks Hill Dam	.98
South Dakota	2 Stations	101	30+	Deerfield 5NW	20	25	Newell 2NW	6.12	Centerville	1.02
Tennessee	do	100	14+	Mountain City 2	43	29	Haw Knob	7.45	Gallatin Steam Plant	1.21
Texas	Presidio	115	24	3 Stations	46	26	Brackettville	11.30	2 Stations	T
Utah	Zion NP	107	28	2 Stations	24	13+	Santaquin PH	1.41	39 Stations	.00
Vermont	Cavendish	87	30	4 Stations	27	7	West Burke	4.32	New Fane	1.16
Virginia	Farmville	97	9	2 Stations	39	7	Elkwood GSE	7.98	Roanoke	1.70
Washington	Richland	110	23	Blue Glacier	28	26	Washougal GENE	6.57	Smyrna	.15
West Virginia	Williamson	96	10	Canaan Valley	27	7	Lakin	6.63	Renick 2S	2.14
Wisconsin	Hatfield Dam	94	30	Willow Reservoir	23	14	Curtiss	8.26	Sheboygan	1.30
Wyoming	Yoder	100	29	Foxpark	23	15+	Grass Creek	4.91	Dixon	T
Puerto Rico	Dos Bocas	96	11	Guineo Reservoir	52	24	San Lorenzo Espino	25.56	Adventure	1.82

* And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

JUNE 1958

State and station	Pressure						Temperature										Precipitation						Wind			No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	No. of days		Snow, Sleet		Max depth on ground	Average hourly speed	Prevailing direction	Fastest hour to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
																		Greatest in 24 hours	Of inch or more	With thunderstorms	Total				Max depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Late	Partly cloudy	Clear	SPV cover tenths sunrise to sunset	Passure sunrise																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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	Ft	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	In	In	In	In	In	In	In	In	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M

CLIMATOLOGICAL DATA

JUNE 1958

State and station	Elevation, ft. or m.	Pressure			Temperature										Precipitation										Wind			No. of days						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	H. moist	Date	Lowest	Date	No. of days	Max 90° F. or above	Min 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	0.1 inch or more	With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		No. of days						
																						Speed	Direction			Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine			
																																0-3	4-7	8-10
		ft	mi	mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	in.	in.	in.	in.	in.	in.	in.	in.	Mph		Mph								
IOWA																																		
Fort Madison	694	988.5	1014.1	77	57	67.2	-1.5	91	8	50	23	1	0	57	74	5.21	-0.43	1.98	12	7	0	0	0	10.6	SSW	37	NW	17	5	14	11	6	69	
Des Moines	948	982.7	1013.8	77	57	67.0	-1.1	91	4	47	23	3	0	57	72	3.34	-1.65	1.46	11	6	0	0	0	11.6	SSW	48	NW	13	6	12	12	6	64	
Dubuque	1065	987.8	1013.7	73	53	63.0	-4.8	86	30	46	6	0	0	52	67	3.34	-1.75	1.13	13	6	0	0	0	---	---	---	---	---	---	---	---	---	---	
Sioux City	1094	972.6	1013.0	80	56	67.8	-2.5	99	29	43	25	5	0	54	65	1.87	-2.54	.73	10	5	0	0	0	11.0	NW	65	N	8	7	12	11	6	66	
Waterloo	870	972.6	1013.0	80	56	67.8	-2.5	99	29	43	25	5	0	54	65	1.87	-2.54	.73	10	5	0	0	0	11.0	NW	65	N	8	7	12	11	6	66	
KANSAS																																		
Concordia (U)	1375	963.1	1011.3	83	62	72.2	-.7	94	30	48	26	9	0	--	66	2.35	-1.88	.84	9	12	0	0	0	8.5	S	25	SW	30	11	15	4	4.5	84	
Dodge City	2594	925.2	1011.3	85	61	73.4	1.9	98	12	46	25	11	0	58	64	4.64	1.63	1.86	13	14	0	0	0	15.4	SSE	50	N	25	11	12	7	4.7	73	
Goodland	3645	886.6	1011.0	83	55	69.0	0	104	30	42	25	7	0	54	63	1.64	-1.38	.63	12	14	0	0	0	12.6	SSE	40	SSW	3	13	13	4	4.5	--	
Topeka	877	977.7	1013.0	82	61	71.6	2.2	96	8	50	27	6	0	61	72	7.52	2.98	2.20	15	14	0	0	0	11.8	S	42	N	12	10	11	9	5.1	61	
Wichita	1321	963.8	1011.5	88	65	76.3	1.0	103	9	47	26	12	0	61	64	3.00	-1.99	1.12	10	11	0	0	0	14.2	S	50	NE	25	12	10	8	4.9	76	
KENTUCKY																																		
Lexington	979	979.6	1015.1	79	60	69.4	-3.6	90	8	49	22	2	0	60	74	4.61	1.40	1.64	10	11	0	0	0	10.1	S	37	NW	17	5	14	11	6	69	
Louisville	474	995.1	1014.3	83	61	72.4	-1.8	95	13	52	22	7	0	61	70	3.84	1.22	1.00	9	7	0	0	0	9.6	S	38	S	25	6	12	12	6	65	
LOUISIANA																																		
Baton Rouge	64	1011.9	1015.0	92	71	81.5	1.9	96	6	63	29	24	0	71	76	4.58	1.44	1.77	12	12	0	0	0	6.3	SSE	37	NW	17	5	14	11	6	69	
Lake Charles	12	1012.2	1013.8	92	75	83.3	2.6	95	13	67	28	26	0	73	74	3.58	-1.57	1.48	8	8	0	0	0	8.2	SSW	40	ESE	6	9	13	8	5.2	--	
New Orleans (U)	9	1012.5	1014.6	90	76	82.9	1.0	93	25	68	6	21	0	--	74	4.56	-1.01	1.14	16	5	0	0	0	5.3	---	20	N	6	8	16	6	5.1	63	
New Orleans	3	1012.5	1014.6	89	73	81.4	.9	94	20	65	29	20	0	71	74	2.81	-2.82	.91	13	7	0	0	0	8.1	SSE	38	WNW	10	10	13	7	5.1	--	
Shreveport	242	1004.1	1013.2	91	71	80.8	1	96	13	61	27	22	0	69	72	6.86	4.22	4.04	9	8	0	0	0	8.9	S	38	NW	10	10	10	10	5	65	
MAINE																																		
Caribou	624	987.1	1010.3	65	44	54.5	-3.9	80	29	30	7	0	2	45	71	4.51	1.56	1.02	17	4	0	0	0	11.3	WSW	52	W	14	1	11	18	7.6	--	
Portland	61	1008.5	1012.7	69	47	58.1	-3.7	86	30	35	7	0	0	49	72	1.91	-1.41	.95	9	3	0	0	0	11.5	S	34	SW	15	8	10	12	6.2	58	
MARYLAND																																		
Baltimore (U)	14	1009.8	1014.7	79	59	68.8	-3.4	91	11	50	16	3	0	58	69	3.65	1.43	1.95	11	7	0	0	0	11.6	S	52	SW	13	8	12	10	5.8	68	
Frederick	294	976.1	1012.7	78	57	67.3	-5.3	90	11	45	7	2	0	--	--	5.22	1.26	1.14	13	2	0	0	0	---	---	---	---	---	---	---	---	---	---	
MASSACHUSETTS																																		
Blue Hills Obs. (R)	629	989.7	1012.9	71	53	61.3	-2.7	86	30	42	7	0	0	--	68	1.62	-2.56	.42	14	2	0	0	0	14.2	W	43	WNW	14	6	12	12	6.2	56	
Boston	15	1007.1	1011.9	72	56	63.9	-5.3	89	30	48	7	0	0	50	65	2.96	1.52	.85	10	2	0	0	0	11.9	SW	44	NNW	14	8	9	13	6.2	63	
Nantucket	43	1012.9	1013.6	65	51	58.0	-2.9	77	29	40	5	0	0	52	83	2.42	1.82	.48	12	3	0	0	0	14.4	WSE	34	N	3	5	10	15	6.7	67	
Pittsfield	1153	970.7	1012.7	69	47	58.3	-4.7	82	30	33	7	0	0	--	--	2.33	-2.26	.61	10	1	0	0	0	---	---	---	---	---	---	---	---	---	---	
Worcester	986	976.1	1012.7	69	51	59.9	-5.5	83	30	40	7	0	0	--	--	2.56	-1.38	1.25	14	2	0	0	0	13.1	---	39	WSW	14	7	10	13	6.1	---	
MICHIGAN																																		
Alpena (U)	587	990.2	1012.6	66	47	56.7	-4.8	89	29	36	6	0	0	--	64	1.89	1.66	.54	11	6	0	0	0	10.9	---	35	W	26	11	8	11	5.4	64	
Detroit	619	987.8	1013.8	74	54	63.9	-4.2	90	30	44	3	1	0	50	62	2.98	1.08	.80	12	4	0	0	0	10.5	SW	42	W	26	6	10	14	6.3	52	
Detroit (Willow Run)	722	985.1	1013.1	75	53	63.9	-4.7	89	30	42	6	0	0	50	63	2.03	-1.23	.72	9	3	0	0	0	8.6	SW	32	W	26	6	10	13	6.3	---	
East Lansing (U)	856	989.8	1012.5	64	47	56.0	-4.7	89	29	36	14	0	0	--	--	2.30	-1.07	.66	7	4	0	0	0	5.0	SW	15	NW	5	--	--	--	--	64	
Escanaba (U)	594	989.8	1012.5	65	47	56.0	-4.7	89	29	36	14	0	0	--	--	71	4.42	1.62	2.69	13	7	0	0	0	10.4	---	36	N	10	6	16	8	5.8	61
Flint	761	985.4	1013.2	72	50	61.0	-6.4	89	30	38	6	0	0	50	66	4.18	1.17	2.54	10	6	0	0	0	7.6	SSW	25	WSW	26	7	10	13	6.3	---	
Grand Rapids	681	988.5	1013.3	74	50	62.0	-4.7	88	30	37	6	0	0	48	63	2.30	-1.05	.87	9	5	0	0	0	10.3	S	31	SW	29	5	12	13	6.5	66	
Marquette (U)	677	984.8	1013.3	74	50	62.0	-4.7	88	29	36	2	0	0	--	60	3.35	-1.11	1.15	12	8	0	0	0	8.7	---	59	SW	30	7	10	13	6.2	68	
Muskegon	627	990.2	1013.6	71	49	60.2	-4.2	84	30	36	6	0	0	48	61	1.24	-1.63	.74	6	4	0	0	0	---	---	---	---	---	---	---	---	---	---	
Sault Ste. Marie	721	989.8	1012.5	65	43	53.8	-4.3	78	28	33	6	0	0	44	72	2.01	-1.01	.92	13	7	0	0	0	10.7	WNW	29	WNW	5	9	10	11	6.0	59	
MINNESOTA																	</																	

LINE 108

See footnotes at end of table.

CLIMATOLOGICAL DATA

JUNE 1958

State and station	Pressure						Temperature										Precipitation										Wind		No. of days				
																													(sunrise to sunset)				
	Elevation (feet)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days	Max. 90° F or above	Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	01 inch or more	With thunderstorms	Snow, Sleet	Max depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine	
ft	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	#	°F	°F	°F	%	In	In	In	In	In	In	In	M	M	M	M	M	0-4	4-8	8-10	0-10	%		
TENNESSEE (cont'd.)																																	
Oak Ridge	905	982.3	-----	87	64	75.2	1.0	95	14	54	28	9	0	---	---	1.91	-2.00	0.65	7	5	0	0	4.6	---	*46	---	1	13	10	7	4	8	--
TEXAS																																	
Abilene	1759	951.2	1010.8	93	69	81.1	2.3	102	10	58	25	23	0	64	60	2.08	-.71	.74	6	4	0	0	11.8	S	43	N	8	17	6	7	3.8	75	
Amarillo	3590	887.6	1009.6	90	62	76.0	1.4	98	11	48	26	19	0	53	53	4.22	-.97	3.77	7	8	0	0	12.8	SSE	49	NW	20	13	14	3	4.1	81	
Austin	615	991.5	1013.1	94	73	83.2	1.7	99	20	64	26	24	0	70	69	2.89	-.31	2.47	6	3	0	0	9.5	SSE	22	NW	21	9	14	7	5.2	66	
Brownsville	16	1009.5	1011.9	91	76	83.4	1.8	96	22	70	6	23	0	75	81	.77	-2.28	.51	5	1	0	0	12.6	SE	33	SE	15	7	17	6	5.4	70	
Corpus Christi	41	1011.2	1012.2	92	76	84.1	1.9	96	26	70	34	30	0	75	77	.75	-2.13	.46	3	1	0	0	11.4	SSE	33	N	22	8	17	5	5.2	91	
Dallas	487	994.6	1012.8	93	72	82.6	7	99	1	60	26	22	0	68	63	1.90	-1.55	1.33	5	6	0	0	11.7	S	32	E	5	14	9	7	4.5	77	
Del Rio (U)	957	-----	-----	94	74	83.5	8	100	10	69	24	27	0	---	---	3.94	1.52	2.50	7	3	0	0	---	---	---	---	---	---	---	---	---	---	---
El Paso	3920	883.2	1007.8	97	71	83.5	3.3	102	24	65	26	30	0	50	36	1.66	-1.04	1.13	7	7	0	0	12.0	SSE	49	NE	16	19	8	3	3.1	86	
Fort Worth	544	992.2	1012.6	93	72	82.3	9	98	14	61	28	22	0	67	64	.67	-2.72	.43	5	6	0	0	13.1	S	*37	NNE	21	16	8	6	3.8	--	
Galveston (U)	7	-----	-----	87	79	83.2	1.7	91	26	72	27	2	0	---	---	-.23	-.31	.21	2	---	0	0	12.7	---	25	S	9	---	---	---	---	86	
Galveston	5	1011.5	1013.9	88	79	83.9	2.1	92	26	73	27	12	0	75	75	.86	-2.49	.33	5	2	0	0	13.8	S	---	---	---	---	---	---	---	4.9	--
Houston (U)	41	1008	-----	92	76	84.0	2.2	96	20	69	27	25	0	---	---	2.10	-1.98	1.75	4	2	0	0	9.5	S	27	SE	29	9	15	6	5.2	82	
Houston	50	1010.5	1013.0	92	75	83.4	2.9	98	21	70	27	25	0	72	73	.47	-3.22	.31	3	3	0	0	11.1	SSE	---	---	---	---	---	---	---	5.2	--
Laredo	500	995.6	1010.8	97	75	86.3	5	103	25	71	2	29	0	70	64	.43	-1.66	1.4	6	8	0	0	14.0	SE	*31	SE	29	10	14	6	4.8	--	
Lubbock	3243	900.8	1009.3	93	66	79.3	2.9	104	11	53	26	23	0	56	51	.71	-1.82	.38	6	8	0	0	14.9	S	*40	ENE	23	17	9	4	3.7	--	
Midland	2854	913.3	1010.0	94	69	81.5	1.4	103	10	59	26	25	0	60	52	.50	-1.46	.50	2	5	0	0	12.0	SSE	*32	ENE	23	12	14	4	4.2	--	
Port Arthur	16	1012.9	1014.2	92	74	82.8	2.7	95	15	67	28	24	0	73	76	.19	-2.85	1.16	8	7	0	0	10.4	S	33	E	6	10	17	3	5.1	71	
San Angelo	1903	945.1	1010.8	93	69	80.9	3	104	10	59	26	23	0	63	59	1.14	-.68	1.05	3	4	0	0	12.7	S	*29	N	25	18	6	6	3.6	--	
San Antonio	792	987.5	1012.2	93	73	82.8	8	97	25	69	28	26	0	69	69	3.39	-.19	3.22	4	4	0	0	10.3	SSE	*34	NE	21	10	13	7	5.1	72	
Victoria	110	1007.8	1012.3	93	74	83.4	3	97	19	68	3	29	0	72	70	.76	-2.48	.60	4	3	0	0	9.5	SSE	*33	S	25	11	13	6	4.8	--	
Waco	500	993.9	1012.3	93	72	82.4	6	97	13	60	26	25	0	69	66	2.72	-.47	2.13	7	6	0	0	11.7	S	*25	SSW	25	13	11	6	4.4	--	
Wichita Falls	1020	974.6	1011.2	94	69	81.6	2	105	10	55	27	23	0	63	59	1.82	-1.58	1.28	5	5	0	0	11.2	S	*28	WNW	18	18	8	4	3.6	--	
UTAH																																	
Milford	5028	841.9	1009.5	87	48	67.5	1.7	97	27	39	14	14	0	---	---	T	-.45	T	0	0	0	0	---	---	---	---	---	---	---	---	---	---	---
Salt Lake City	4220	864.2	1008.6	86	55	70.6	3.5	102	27	41	4	11	0	40	37	.04	-.87	.02	2	2	0	0	9.7	SSE	32	S	29	20	8	2	2.6	90	
VERMONT																																	
Barre	331	996.5	1012.1	70	50	59.8	-5.7	84	29	35	7	0	0	47	64	3.77	20	1.22	12	3	0	0	9.9	S	38	SW	1	5	7	18	7.3	58	
VIRGINIA																																	
Lynchburg	947	981.3	-----	81	61	70.9	-1.9	93	13	54	16	4	0	---	---	2.40	-1.48	.40	13	7	0	0	7.7	---	32	NW	14	6	15	9	5.8	66	
Norfolk	26	1013.6	1015.0	81	63	71.8	-2.9	95	26	51	5	5	0	62	74	4.99	.83	1.97	12	6	0	0	9.3	SSW	40	W	9	7	15	8	5.7	57	
Richmond	162	1009.2	1015.3	82	61	71.3	-3.0	94	11	53	7	5	0	62	74	6.09	2.22	1.40	13	8	0	0	8.0	S	34	NW	13	8	11	11	6.2	63	
Roanoke	1174	973.6	1015.2	83	60	71.8	-9	93	13	54	29	6	0	59	67	1.88	1.82	.52	10	7	0	0	8.0	SE	---	---	---	---	---	---	---	---	
WASHINGTON																																	
Olympia	190	1007.5	1014.8	75	53	63.9	5.0	96	22	45	2	3	0	53	71	1.65	.37	.93	6	3	0	0	6.4	SSW	*31	S	5	4	7	19	7.2	--	
Seattle (U)	14	-----	-----	74	58	65.8	4.0	89	22	54	30	0	0	---	---	.72	-.53	.45	6	3	0	0	8.4	---	*33	SW	27	4	11	15	6.9	47	
Seattle	14	1013.5	1014.6	75	58	66.7	4.1	91	22	50	2	2	0	---	---	.90	-.40	.63	6	3	0	0	7.8	---	*32	SW	27	4	9	17	7.0	--	
Seattle-Tacoma	386	1000.7	1014.7	73	55	64.0	4.1	91	22	50	2	2	0	---	---	.90	-.40	.63	6	3	0	0	7.8	---	*32	SW	27	4	9	17	7.0	--	
Spokane	2357	944.4	1012.2	78	54	65.6	4.2	96	22	44	29	4	0	48	57	1.63	.46	.63	9	8	0	0	7.6	SSW	30	SW	27	5	13	12	6.2	67	
Stanpede Pass (R)	3958	879.4	1016.4	63	47	55.2	4.8	83	22	39	30	0	0	---	---	1.63	-.11	1.30	13	3	0	0	---	---	---	---	---	---	---	---	---	---	---
Tatoosh (R)	101	1012.2	1015.1	63	54	58.4	4.4	77	17	50	30	0	0	54	88	.57	-2.01	.18	9	0	0	0	10.4	W	42	S	5	3	6	21	7.9	47	
Walla Walla (U)	949	975.6	1010.8	83	59	70.8	2.9	101	22	52	29	10	0	---	---	.80	-.41	.28	6	2	0	0	6.0	---	27	W	23	12	10	8	4.8	77	
Yakima	1061	972.9	1011.3	84	54	69.3	3.9	102	22	41	29	8	0	46	46	.21	-.38	.18	2	2	0	0	6.6	NW	28	WNW	11	8	10	12	5.8	--	
WEST VIRGINIA																																	
Charleston	950	979.6	1014.8	80	57	68.5	-3.5	90	13	44	7	1	0	58	71	3.32	-.61	.85	14	6	0	0	6.0	SW	32	SW	1	5	11	14	6.7	--	
Elkins	1970	-----	-----	75	51	62.8	-3.7	84	1	37	7	4	0	56	---	3.51	-1.75	1.05	13	6	0	0	5.9	NW	*23	NW	16	3	11	16	7.1	--	
Huntington (U)	565	-----	-----	81	59	70.0	-4.1	92	13	50	7	4	0	---	---	2.95	-1.39	.88	10	0	0	0	---	---	---	---	---	---	---	---	---	---	---
Parkersburg (U)	615	-----	-----	79	58	68.3	-4.1	90	13	47	7	2	0	---	---	5.52	1.34	1.89	16	7	0	0	5.2	---	31	NW	13	6	10	14	6.0	53	
WISCONSIN																																	
Green Bay	689	989.8	1012.6	72	46	58.8	-5.9	89	29	32	6	0	1	48	69	1.82	-1.75	.64	10	8	0	0	10.4	SW	37	SW	7	5	12	13	6.3	57	
Madison	857	978.3	1012.3	75	54	64.1	-4.5	89	30	44	6	0	0	52	64	2.29	-1.58	1.05	13	8	0	0	9.9	S	*29	NW	10	3	16	11	6.5	--	
Milwaukee	672	988.8	1013.9	70	50	60.2	-4.7	89	30	41	6	0	0	49	69	1.71	-1.51	.62	13	6	0	0	9.2	SW	28	W	26	4	12	14	6.8	50	
Wausau	672	988.8	1013.9	70	50	60.2	-4.7	89	30	41	6	0	0	49	69	1.71	-1.51	.62	13	6	0	0	9.2	SSE	28	SW	29	4	10	16	6.6	64	
WYOMING																																	
Casper	5322	836.4	1010.3	79	48	63.7	1.7	94	29	42	13	3	0	42	54	1.32	-.16	.58	9	9	0	0	9.1	SW	*35	WSW	30	4	10	10	5.2	--	
Cheyenne	6131	811.7																															

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°)

1957 - 1958

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
ALABAMA														
Birmingham	0	0	24	217	344	519	788	762	462	116	25	0	3257	2780
Mobile	5	0	7	108	197	389	608	569	256	51	7	0	2192	1612
Montgomery	0	0	17	133	234	470	692	659	319	74	17	0	2615	2137
ARIZONA														
Flagstaff	47	73	225	603	961	919	1062	858	1054	718	338	136	6994	7525
Phoenix (U)	0	0	0	19	245	286	342	173	219	55	0	0	1339	1492
Phoenix	0	0	0	12	253	303	365	191	245	68	0	0	1437	1698
Prescott	0	3	14	316	695	710	812	574	755	419	91	3	4392	4532
Tucson	0	0	0	41	314	306	416	252	329	100	0	0	1758	1776
Winslow	0	0	6	269	723	895	901	571	654	362	47	0	4338	4702
Yuma	0	0	0	0	125	162	205	62	106	28	0	0	688	951
ARKANSAS														
Ft. Smith	0	0	3	194	462	559	809	750	614	146	27	0	3564	3188
Little Rock	0	0	0	164	378	487	753	725	562	132	26	0	3227	2982
Texarkana	0	0	0	132	348	417	660	609	449	121	13	0	2749	2362
CALIFORNIA														
Bakersfield	0	0	0	45	304	535	509	224	337	141	12	0	2107	2115
Bishop	0	3	9	337	625	740	774	572	707	377	51	16	4211	4222
Blue Canyon	21	86	128	541	689	735	833	788	1019	707	339	264	6150	5719
Burbank	0	0	0	48	200	206	242	196	318	118	29	0	1357	1808
Eureka (U)	254	200	167	267	397	465	420	307	528	404	295	165	3869	4632
Fresno	0	0	0	79	386	604	568	309	402	183	18	1	2550	2532
Los Angeles (U)	0	0	0	16	131	112	164	130	246	82	13	0	894	1451
Los Angeles	0	0	0	16	143	133	174	131	211	70	4	0	882	2015
Mt. Shasta (R)	29	91	125	571	792	854	906	688	882	587	244	183	5952	5913
Oakland	14	34	8	97	337	496	455	265	410	226	101	18	2461	3163
Red Bluff	0	0	10	149	403	618	580	355	469	193	24	0	2801	2546
Sacramento (U)	0	0	3	102	361	579	554	286	410	171	27	2	2495	2600
Sacramento	0	1	2	120	393	602	590	305	435	167	31	1	2822	2822
Sandberg (R)	0	25	43	404	609	606	685	581	802	501	165	134	4555	4243
San Diego	0	0	0	8	126	117	170	122	221	79	11	0	854	1574
San Francisco (U)	162	165	56	81	239	413	373	242	359	235	171	73	2569	3069
San Francisco	45	74	22	110	319	468	446	262	393	211	90	14	2454	3421
San Jose	0	6	1	70	292	440	400	224	377	201	50	5	2066	2410
Santa Maria	55	90	53	137	317	324	387	283	421	253	194	132	2646	2934
COLORADO														
Alamosa	21	72	339	655	1291	1393	1490	1012	1060	801	341	80	8555	8659
Colorado Springs	1	3	173	423	950	839	995	791	1037	647	166	50	6075	6254
Denver	0	0	141	420	838	782	986	765	990	606	138	36	5702	6132
Grand Junction	0	11	55	340	854	1032	1084	693	761	468	84	0	5382	5796
Pueblo	0	0	81	324	824	798	1002	752	913	503	78	17	5292	5709
CONNECTICUT														
Bridgeport	0	8	71	338	530	834	1083	1087	809	461	290	73	5584	5896
Hartford	0	28	122	421	627	911	1210	1184	848	497	304	108	6260	6139
New Haven	0	12	87	377	549	842	1094	1096	807	488	342	101	5795	6026
DELAWARE														
Wilmington	0	0	65	359	544	836	1056	1050	800	347	149	31	5237	4910
DISTRICT OF COLUMBIA														
Washington (U)	0	0	43	305	462	720	946	944	726	261	67	0	4474	4258
Washington	0	0	40	292	458	725	943	941	723	255	66	0	4443	4333
FLORIDA														
Apalachicola (U)	0	0	0	60	95	336	526	488	171	26	4	0	1706	1307
Daytona Beach	0	0	0	31	37	260	398	402	129	21	2	0	1280	868
Fort Myers	0	0	0	14	3	149	246	284	60	0	0	0	756	405
Jacksonville	0	0	0	50	85	346	505	469	184	39	7	0	1685	1243
Key West	0	0	0	0	0	30	55	103	*15	0	0	0	203	77
Miami (U)	0	0	0	5	0	78	124	189	30	0	0	0	426	173
Miami	0	0	0	1	0	76	137	193	28	0	0	0	435	178
Miami Beach	0	0	0	0	0	41	84	134	13	0	0	0	272	123
Orlando	0	0	0	23	23	203	371	362	92	6	0	0	1080	650
Pensacola (U)	0	0	2	90	152	351	549	533	217	0	6	0	1900	1435
Tallahassee	0	0	0	80	108	369	562	520	192	32	6	0	1869	1519
Tampa	0	0	0	25	21	193	356	343	77	2	0	0	1017	674
West Palm Beach	0	0	0	3	0	89	164	223	37	0	0	0	516	246
GEORGIA														
Athens	0	0	40	200	344	599	829	758	515	169	29	0	3483	2800
Atlanta	0	0	36	207	340	560	801	756	466	128	29	0	3323	2826
Augusta	0	0	19	168	284	528	741	658	414	109	19	0	2940	2138
Columbus	0	0	17	132	260	504	715	670	363	88	19	0	2768	2396
Macon	0	0	22	129	246	460	689	621	346	81	15	0	2609	2049
Rome	0	19	239	410	660	860	1039	860	520	164	36	0	3742	3138
Savannah	0	0	3	107	209	442	644	584	333	73	14	0	2409	1710
IDAHO														
Boise	5	5	75	470	850	942	1032	632	745	510	119	69	5454	5890
Lewiston	1	1	49	441	781	782	850	560	731	477	102	32	4807	5483
Pocatello	2	11	166	538	1032	1050	1297	778	897	639	155	61	6626	6976
ILLINOIS														
Cairo (U)	0	0	7	226	501	628	934	952	682	190	48	0	4168	3756
Chicago	0	0	89	397	736	941	1192	1253	890	406	149	61	6114	6310
Chicago University	0	1	93	396	725	919	1169	1219	908	452	194	100	6176	6176
Moline	0	2	136	467	800	989	1319	1345	898	435	125	41	6557	6364
Peoria	0	0	70	408	758	949	1233	1271	868	381	114	35	6087	6087
Springfield	0	0	72	392	721	874	1119	1170	872	354	98	23	5695	5693
INDIANA														
Evansville	0	0	28	333	613	727	1016	1074	783	291	77	6	4948	4360
Ft. Wayne	0	5	140	467	754	942	1205	1200	913	451	206	59	6342	6287
Indianapolis	0	2	90	415	721	888	1136	1150	897	381	141	28	5849	5611
South Bend	0	7	154	469	742	977	1241	1231	925	458	212	98	6514	6524
IOWA														
Burlington	0	0	97	407	783	970	1253	1326	874	414	109	28	6261	6101
Des Moines	0	2	113	449	877	1018	1238	1341	933	445	98	37	6551	6446
Dubuque	1	18	180	510	911	1111	1372	1383	978	526	183	91	7264	7271
Keokuk (U)	0	0	71	340	735	900	1179	1241	852	384	76	13	5791	5791
Sioux City	0	1	133	450	868	1003	1258	1314	968	475	83	35	6588	7012
KANSAS														
Concordia (U)	0	0	54	340	769	812	1050	1084	971	397	67	11	5555	5323
Dodge City	0	0	145	336	748	770	937	948	1027	439	67	15	5329	5058
Goodland	0	0	142	454	880	904	1061	973	1214	595	121	38	6382	6367
Topeka (U)	0	0	36	318	683	786	1023	1045	851	311	56	----	4919	4919
Topeka	0	0	55	355	702	844	1062	1077	874	350	76	10	5405	5209
Wichita	0	0	36	321	687	757	932	982	891	334	44	■	4992	4571

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°)

1957 - 1958

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
KENTUCKY														
Lexington	0	0	39	370	608	774	1065	1091	811	324	92	16	5190	4979
Louisville	0	0	22	316	577	712	999	1041	754	247	59	2	4729	4439
Pikeville (U)	0	0	25	288	460	653	927	934	661	201	54	0	4203	-----
LOUISIANA														
Baton Rouge	0	0	1	93	187	318	53	495	247	44	1	0	1439	1595
Lake Charles	0	0	0	82	177	262	464	444	203	25	0	0	1657	1543
New Orleans (U)	0	0	6	63	135	232	465	447	186	20	0	0	1554	1175
New Orleans	0	0	5	72	149	302	502	459	199	23	0	0	1711	1317
Shreveport	0	0	0	115	310	384	616	564	391	87	4	0	2471	2117
MAINE														
Caribou	102	192	283	592	895	1356	1473	1464	1022	727	522	309	8937	10173
Greenville (U)	83	181	255	595	877	1267	1406	1458	1059	741	516	290	8728	-----
Portland	23	86	184	468	721	986	1183	1283	889	630	430	206	7089	7681
MARYLAND														
Baltimore (U)	0	0	33	233	419	708	863	891	635	202	46	3	4033	4203
Baltimore	0	2	56	358	529	798	1001	1004	775	310	107	20	4960	4787
Frederick	0	3	86	418	599	885	1056	1041	844	376	148	37	5493	4854
MASSACHUSETTS														
Blue Hill Obs. (R)	4	33	96	444	637	899	1146	1202	928	580	386	146	6501	- - -
Boston	0	7	37	317	529	766	1046	1102	796	481	262	85	5448	5791
Nantucket	2	28	80	354	528	748	951	1068	857	599	428	209	5852	6102
Pittsfield	40	107	205	548	759	1010	1347	1327	982	580	413	202	7520	7694
MICHIGAN														
Alpena (U)	37	81	245	565	815	1120	1313	1334	1007	666	462	258	7903	8073
Detroit	0	7	130	432	713	952	1182	1173	883	457	228	76	6233	6404
Detroit (Willow Run)	0	11	119	443	746	965	1194	1186	861	449	213	72	6259	6469
East Lansing (U)	0	14	151	468	762	1005	1239	1228	903	463	226	105	6564	-----
Escanaba (U)	30	70	292	561	900	1227	1324	1353	1041	688	482	275	8243	8657
Grand Rapids	1	19	196	511	794	1039	1290	1248	929	518	252	122	6919	7075
Marquette (U)	62	89	259	516	933	1218	1292	1352	1070	672	507	253	8223	8529
Muskegon	4	21	201	508	755	1031	1243	1225	928	547	304	162	6929	7089
S. Ste. Marie	90	121	318	590	897	1271	1478	1499	1046	699	595	329	8933	9475
MINNESOTA														
Duluth (U)	51	77	357	649	1094	1455	1513	1518	1137	717	474	304	9346	9574
Duluth	35	79	372	669	1102	1466	1522	1524	1175	707	450	297	9398	9937
International Falls	21	131	420	663	1178	1611	1633	1625	1127	687	462	300	9858	10600
Minneapolis	0	13	184	500	963	1226	1311	1383	980	507	169	106	7342	7853
Rochester	0	24	203	536	937	1237	1361	1420	1053	579	244	169	7763	8095
St. Cloud	0	37	265	586	1014	1332	1463	1488	1089	591	266	194	8325	8893
MISSISSIPPI														
Jackson	0	0	17	148	301	449	707	682	429	89	16	0	2838	2202
Meridian	0	0	22	149	288	464	740	676	379	82	11	0	2811	2333
Vicksburg (U)	0	0	12	137	280	362	638	632	408	75	10	0	2554	2000
MISSOURI														
Columbia	0	0	47	321	687	797	1069	1122	859	325	72	11	5310	5113
Kansas City	0	0	29	302	651	783	1020	1053	828	288	52	4	5010	4888
St. Joseph	0	0	54	365	750	888	1134	1182	863	349	74	9	5668	5336
St. Louis (U)	0	17	281	607	702	1001	1074	803	251	59	4	0	4799	4469
St. Louis	0	0	30	310	638	745	1042	1100	828	284	69	10	5056	4699
Springfield	0	0	41	310	642	692	970	1011	866	317	68	11	4928	4693
MONTANA														
Billings	3	25	188	623	916	851	913	1073	960	601	105	158	6416	7106
Glasgow	4	42	225	702	952	1135	1231	1433	1153	600	154	148	7779	8690
Great Falls	7	69	197	750	894	877	874	1153	1138	623	144	194	6920	7555
Hayre (U)	3	35	204	753	960	1062	1385	1227	979	133	128	50	7394	8213
Helena	7	57	264	738	976	998	1129	1113	1073	679	167	189	7390	8250
Kalispell	60	101	286	744	1007	1042	1139	996	964	646	171	119	7275	8055
Miles City	0	13	185	586	912	976	1065	1274	1015	548	89	119	6782	7850
Missoula	26	58	178	699	964	1017	1116	879	889	634	173	132	6765	7873
NEBRASKA														
Grand Island	0	0	132	418	836	937	1189	1191	1109	516	115	44	6487	6311
Lincoln (U)	0	0	76	386	816	863	1128	1137	918	417	166	15	5922	5865
Norfolk	0	0	151	461	865	1005	1248	1336	1051	514	112	50	6793	7065
North Platte	0	0	182	482	882	968	1175	1106	1272	594	137	56	6854	6546
Omaha	0	0	91	404	828	921	1181	1250	904	419	63	15	6076	6160
Scottsbluff	0	2	191	469	935	920	1093	973	1083	647	124	44	6481	6841
Valentine	0	7	186	511	902	993	1157	1245	1165	618	148	83	7015	7075
NEVADA														
Elko	4	31	227	644	1028	1101	1217	801	1005	708	258	147	7171	7335
Ely	12	33	252	659	1074	1058	1154	864	1068	796	332	173	7475	7443
Las Vegas	0	0	0	89	475	556	580	350	394	154	3	0	2601	2425
Reno	1	45	116	556	845	916	943	658	861	589	176	139	5845	6036
Tonopah	0	20	74	488	849	924	958	703	855	564	149	52	5636	5813
Winnemucca	1	39	153	604	957	983	1025	670	921	620	206	122	6301	6369
NEW HAMPSHIRE														
Concord	17	67	167	482	714	990	1269	1272	900	574	386	167	7005	7612
Mt. Washington Obs.	578	646	683	1054	1289	1539	1608	1806	1507	1199	1022	756	13687	-----
NEW JERSEY														
Atlantic City (U)	0	1	40	258	427	699	962	981	757	408	221	41	4795	4741
Newark	0	0	54	289	495	796	1025	1036	752	355	188	25	5015	5252
Trenton (U)	0	0	60	311	493	794	1027	1024	764	339	161	34	5007	5068
NEW MEXICO														
Albuquerque	0	0	3	269	739	817	914	596	679	354	24	0	4395	4389
Clayton	0	0	85	387	828	761	943	793	991	544	120	24	5476	5138
Roswell	0	0	10	222	600	655	783	552	949	226	16	0	4013	3424
NEW YORK														
Albany	3	30	152	450	691	981	1323	1286	892	476	322	118	6724	6962
Binghamton	42	68	166	552	770	1057	1351	1341	1072	604	407	205	7634	7537
Buffalo	13	26	140	456	717	930	1231	1242	940	498	343	111	6647	6838
New York (U)	0	0	47	268	464	749	1014	1035	763	364	205	32	4941	5050
New York	0	0	40	247	446	734	1007	1032	746	364	193	26	4835	4989
Rochester	17	49	158	477	721	948	1268	1269	965	509	377	131	6849	6863
Schenectady	0	14	122	425	665	930	1255	1211	851	459	279	91	6302	7050
Syracuse	10	38	131	457	683	949	1345	1265	943	496	330	114	6761	6520
NORTH CAROLINA														
Asheville (U)	0	0	60	398	509	731	1010	981	679	288	70	4	4730	4072
Cape Hatteras (R)	0	1	0	108	226	413	723	729	603	270	35	0	3114	2392
Charlotte	0	0	37	229	361	611	849	841	655	380	165	8	3692	3205
Greensboro	0	1	52	324	448	693	946	882	675	244	57	0	4322	3810
Raleigh	0	1	38	295	399	619	893	819	623	210	41	1	3939	3369
Wilmington	0	0	4	156	277	482	736	668	488	152	15	0	2978	2323

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(base 65°)

1957-1958

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total Season	Normal July-June
NORTH CAROLINA (cont'd.)														
Winston-Salem	0	1	54	290	428	666	918	866	656	230	47	0	4156	3721
NORTH DAKOTA														
Bismarck	0	44	264	605	1012	1257	1444	1515	1123	606	204	166	8240	9033
Devils Lake (U)	1	70	340	655	1134	1428	1546	1586	1150	651	288	222	9071	9940
Fargo	0	35	274	568	1074	1343	1470	1471	1049	587	237	182	8290	9274
Grand Forks	2	31	318	615	1137	1425	1520	1517	1086	620	279	207	8777	9777
Pembina	5	38	288	567	1142	1469	1549	1534	1103	644	342	218	8899	9899
Williston (U)	0	59	235	668	1014	1216	1320	1407	1217	582	189	173	8080	9068
OHIO														
Akron	11	12	133	491	730	973	1225	1227	936	461	256	98	6553	6203
Cincinnati (U)	0	0	30	291	543	723	1007	1015	760	271	67	3	4710	4532
Cincinnati	0	1	47	361	636	809	1097	1104	832	336	100	15	5338	5195
Cleveland	0	6	97	403	656	891	1137	1164	907	413	218	73	5965	6006
Columbus	0	0	73	413	640	867	1131	1115	841	383	141	28	5632	5615
Dayton	0	0	77	410	689	882	1170	1155	893	401	148	38	5863	5597
Sandusky (U)	0	1	95	409	680	886	1180	1173	896	439	202	53	6014	5859
Toledo	0	9	145	471	741	944	1210	1193	897	465	233	70	6378	6394
Youngstown	12	19	148	486	721	961	1200	1238	949	462	276	130	6602	6172
OKLAHOMA														
Oklahoma City	0	0	17	263	572	633	789	818	737	268	24	3	4124	3644
Tulsa	0	0	5	225	515	582	814	834	696	194	23	0	3888	3584
OREGON														
Astoria	181	145	100	359	561	613	585	435	620	492	285	128	4504	4995
Burns (U)	24	45	126	597	917	1039	1138	784	911	648	182	152	6563	6918
Eugene	42	58	51	382	652	682	675	451	613	426	154	92	4278	4779
Meacham	123	172	195	683	965	1025	1054	796	986	780	330	242	7351	7888
Medford	6	12	44	405	723	823	790	477	646	420	98	66	4510	4547
Pendleton	0	4	61	483	712	729	832	502	682	444	91	20	4560	5204
Portland (U)	14	13	10	295	547	619	588	400	540	362	98	48	3534	4143
Portland	25	35	45	370	624	644	656	451	599	420	128	62	4059	4632
Roseburg	24	41	56	354	648	649	643	430	598	415	139	79	4076	4632
Salem	39	45	47	359	657	674	680	463	614	436	142	68	4224	4574
Sexton Summit (R)	157	184	120	584	702	811	823	714	901	668	269	265	6198	6217
PENNSYLVANIA														
Allentown	0	8	93	410	626	907	1122	1125	849	402	232	62	5836	5880
Harrisburg	0	0	76	376	594	855	1070	1065	815	339	148	42	5380	5258
Philadelphia (U)	0	0	40	256	458	733	971	989	724	297	120	15	4603	4523
Philadelphia	0	0	64	335	510	786	1023	1024	770	328	136	27	5003	4866
Pittsburgh (U)	0	0	64	394	568	808	1074	1082	818	351	138	45	5342	5048
Pittsburgh	4	10	101	469	662	912	1159	1180	888	415	207	83	6090	5905
Reading (U)	0	0	64	338	534	809	1028	1037	779	323	149	27	5088	5060
Scranton	11	37	139	479	685	966	1222	1225	946	478	268	118	6574	6047
Williamsport	0	11	109	424	664	917	1146	1146	847	416	216	100	5996	5898
RHODE ISLAND														
Block Island	3	14	67	316	491	714	974	1058	830	537	394	158	5556	5843
Providence	0	22	93	368	576	817	1056	1124	816	509	309	114	5804	6125
SOUTH CAROLINA														
Charleston (U)	0	0	2	90	180	404	626	592	359	75	10	0	2338	1769
Charleston	0	0	5	130	224	453	674	609	387	91	15	0	2588	1973
Columbia	0	0	20	160	287	526	766	671	463	113	19	0	3025	2435
Florence	0	0	16	156	265	493	754	650	451	113	14	0	2912	2507
Greenville	0	0	43	234	368	613	847	777	563	175	30	0	3650	3060
Spartanburg	0	0	40	242	371	623	855	792	562	179	29	0	3693	3044
SOUTH DAKOTA														
Huron	0	18	190	501	950	1118	1296	1379	1112	564	164	114	7406	7902
Pierre	0	20	161	498	926	1066	1251	1347	1134	582	152	91	7228	7728
Rapid City	0	22	189	553	876	924	1019	1201	1057	622	129	121	6713	7535
Sioux Falls	0	13	189	509	943	1099	1271	1341	1036	554	148	97	7200	7848
TENNESSEE														
Bristol	0	0	45	351	496	738	1001	1032	678	282	65	0	4688	4148
Chattanooga	0	0	19	269	429	657	876	865	570	178	40	0	3903	3384
Knoxville	0	0	23	264	430	648	902	920	586	188	53	0	4014	3590
Memphis	0	0	6	191	407	526	844	862	592	154	36	0	3618	3137
Nashville	0	0	10	270	488	619	911	950	643	204	56	1	4151	3513
TEXAS														
Abilene	0	0	6	141	487	466	642	590	544	160	16	0	3052	2657
Amarillo	0	0	45	303	721	683	867	758	861	412	66	5	4721	4345
Austin	0	0	0	98	298	275	499	457	319	53	0	0	1999	1713
Brownsville	0	0	0	18	102	94	219	117	102	0	0	0	652	617
Corpus Christi	0	0	0	31	161	157	307	232	176	7	0	0	1071	1011
Dallas	0	0	0	127	371	363	584	561	470	108	6	0	2590	2272
Del Rio (U)	---	---	0	57	285	302	438	340	224	17	4	0	1667	1667
El Paso	0	0	4	127	476	570	677	370	422	116	3	0	2765	2641
Ft. Worth	0	0	0	144	402	410	615	592	496	138	9	0	2806	2361
Galveston (U)	0	0	0	49	145	175	401	379	220	13	0	0	1382	1211
Galveston	0	0	0	52	152	189	419	390	226	13	0	0	1441	1233
Houston (U)	0	0	0	71	175	208	406	397	221	21	0	0	1499	1276
Houston	0	0	0	71	185	245	449	417	234	30	0	0	1631	1388
Laredo	0	0	0	33	189	163	320	249	154	2	0	0	1110	781
Lubbock	0	0	19	228	661	640	868	677	726	295	33	0	4147	3587
Midland	0	0	2	155	530	504	709	566	522	176	16	0	3180	2728
Port Arthur	0	0	0	83	181	269	478	440	232	34	0	0	1717	1517
San Angelo	0	0	0	138	451	424	611	546	487	142	14	0	2813	2107
San Antonio	0	0	0	71	270	292	453	419	289	22	0	0	1816	1579
Victoria	0	0	0	63	199	224	392	338	223	9	0	0	1448	1126
Waco	0	0	0	113	340	327	559	514	401	80	7	0	2341	2025
Wichita Falls	0	0	4	190	491	539	688	677	630	183	18	0	3420	3025
Del Rio *	0	0	---	---	---	---	---	---	---	---	---	---	---	---
UTAH														
Milford	0	9	127	471	1006	993	1181	709	897	613	184	34	6224	6445
Salt Lake City	0	1	101	401	909	971	1053	649	794	527	106	13	5525	5866
VERMONT														
Burlington	17	82	167	503	764	1092	1404	1456	994	580	405	169	7633	7865
VIRGINIA														
Lynchburg	0	6	65	355	488	728	969	929	730	289	100	7	4666	4153
Norfolk	0	0	9	214	329	558	852	795	655	242	44	7	3705	3454
Richmond	0	0	50	317	434	674	936	871	696	254	70	6	4308	3955
Roanoke	0	3	67	349	498	735	964	920	727	282	82	3	4630	4152
WASHINGTON														
Olympia	105	91	82	438	654	696	685	497	665	484	187	87	4671	5501
Seattle (U)	47	21	31	336	558	581	574	413	539	377	116	46	3639	4438
Seattle-Tacoma	97	95	72	434	638	656	656	482	645	468	163	81	4487	5275
Spokane	30	39	105	612	877	922	1015	697	804	596	143	76	5916	6852

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°)

1957 - 1958

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
WASHINGTON (Cont'd.)														
Stampede Pass (R)	393	368	233	778	951	1084	1156	900	1048	857	423	319	8510	9149
Tatoosh Island (R)	287	222	196	378	501	588	565	466	565	479	353	193	4793	5724
Walla Walla (U)	0	0	42	446	673	696	766	494	619	405	71	15	4227	4848
Yakima	28	43	82	522	844	914	924	615	744	503	112	34	5365	5845
WEST VIRGINIA														
Charleston	0	0	43	385	534	756	1038	1042	784	328	93	15	5018	4417
Elkins	13	39	109	554	683	897	1206	1194	932	478	233	97	6435	5773
Huntington (U)	0	0	30	354	520	737	994	1014	756	283	84	7	4779	4073
Parkersburg (U)	0	2	49	389	574	798	1068	1063	800	324	113	20	5200	4750
WISCONSIN														
Green Bay	14	50	263	586	912	1231	1402	1399	1034	629	366	208	8094	8259
La Crosse	0	21	178	509	917	1189	1351	1360	973	484	151	72	7205	7650
Madison (U)	0	12	178	502	888	1152	-----	-----	---	---	---	---	-----	-----
Madison	1	17	197	535	883	1142	1360	1339	955	545	221	104	7299	7417
Milwaukee	8	8	193	503	848	1087	1330	1346	977	575	291	165	7331	7205
WYOMING														
Casper	5	14	267	570	1063	1021	1129	940	1129	735	207	88	7168	7638
Cheyenne	8	23	284	553	1049	923	1081	891	1218	774	255	100	7159	7562
Lander	6	24	267	576	1198	1111	1295	893	1098	711	230	108	7517	8303
Sheridan	3	14	248	637	975	921	1034	1079	1038	698	163	168	6978	7903
ALASKA														
Anchorage	206	191	445	823	955	1722	1433	1279	1115	776	533	291	9769	10789
Annette	273	188	212	528	659	875	734	691	753	538	392	146	5989	7096
Barrow	788	705	1075	1414	2103	2674	2543	2290	2391	1953	1470	919	20325	19994
Barter Island	746	582	1040	1388	2090	2733	2584	2556	2450	1883	1342	857	20251	-----
Bethel	274	305	566	884	1164	2130	1951	1446	1235	977	791	380	12103	12880
Cold Bay	450	388	472	663	805	1158	1208	962	946	814	749	567	9182	-----
Cordova	339	289	418	686	793	1316	1130	999	999	731	646	399	8745	9615
Fairbanks	150	178	634	1102	1496	2499	2102	1780	1514	909	515	101	12980	14158
Juneau	288	225	371	709	808	1097	995	1057	988	668	518	250	7974	8888
King Salmon	261	225	506	720	910	1961	1580	1152	1095	822	684	406	10322	-----
Kotzebue	369	367	710	1165	1446	2409	2265	1760	1699	1359	1128	471	15148	16151
McGrath	190	225	632	1050	1476	2491	2216	1755	1406	930	637	227	13235	14390
Nome	521	460	707	1022	1269	2129	1965	1435	1479	1200	1038	447	13672	14086
Northway	272	---	---	---	---	---	---	---	---	---	---	---	-----	-----
St. Paul	535	471	578	757	918	1202	1424	1201	1064	962	908	673	10693	10839
Yakutat	321	260	357	658	778	1139	1012	949	967	717	614	352	8124	9354

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

Note: "Heating Degree Days" has been discontinued in the June issues of this publication, the data appearing therein being shown in the last three columns of the above Table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
PENNSYLVANIA Statewide	1	2 p.m.- midnight			1		4	1	Wind, electrical, and rain	Strong winds accompanying scattered thunderstorms blew off several house roofs in west. At Pittsburgh, 12 barges broke loose from moorings on Allegheny River and stage in Pittsburgh stadium torn up by 58 m.p.h., winds. Numerous houses, barns, and garages destroyed by lightning-induced fires. Pittsburgh woman struck and killed by lightning. Storm moved eastward.
NEBRASKA Bridgeport (near, Morrill County	1	4:30 p.m.			0	0	1	1	Funnels aloft	Several observed; remained aloft.
COLORADO Elbert County	1	5:40 p.m.			0	0	1	1	Funnel aloft	Pilot reported funnel cloud to within 1,000 feet of ground 15 miles south of Kiowa. Several other reports believed same phenomena.
COLORADO Eastern portion	1	Afternoon -evening							Hail, rain, and wind	Thunderstorm activity from foothills to eastern border brought hail, rain, and wind to scattered areas. Heavy hail damage reported in southwestern Weld County, Lincoln, Otero, Bent, Kiowa, and Prowers Counties. 4 inches of hail on ground near Arriba. Storm moved eastward.
NEW YORK Scattered areas	1	Late afternoon- evening			0	0		2	Wind, electrical, rain, hail and tornado (suspected)	Scattered severe thunderstorms brought some tree limbs down and caused power and phone interruptions in widely scattered areas. Newspaper account gives storm tornadic characteristics at Redfield.
TEXAS Andrews, Andrews County	1	5:24 p.m.			0	0	1	1	Funnel aloft	
TEXAS Nazareth community, Castro County	1	5:30 p.m.	20	*5				5	Hail	Golf-ball size to larger hailstones; about 3,500 acres of wheat destroyed, another 1,500 heavily damaged. Undetermined damage to cotton. Storm moved southeastward.
TEXAS Hereford area, Deaf Smith County	1	5:30 p.m.	12	*2				5	Hail	Damage of 30 to 40 percent to wheat and vegetables. Storm moved southeastward.
TENNESSEE Springfield and Sandy Springs community, Robertson County	1	6 p.m.						1	Electrical and wind	At Sandy Springs community, house, struck by lightning burned to ground. At Springfield, business house ignited by lightning received minor damage, and powerlines damaged by toppled trees.
NEBRASKA Morrill and Garden Counties	1	7-8:20 p.m.	30	*10	0	0	3	5	Tornado, hail, and wind	Frame schoolhouse destroyed. Hailstones 1 to 2 inches in diameter; ground covered. Crop damage by hail. Storm moved east-southeastward.
TEXAS Smyer-Ropesville area, Hockley County	1	8:30- 9:30 p.m.	3	500			4	5	Hail and rain	Heavy rain, and golf-ball size hail destroyed hundreds of acres of crops, damaged roofs and windows, trees, lawns, and outbuildings. Fields washed level and eroded by rain. Storm moved eastward.
TEXAS Lockney (north and northeast of), Floyd County	1	9-10 p.m.	10	*3			3	4	Hail and rain	Hail wiped out some cotton and wheat crops, damaged others. High wind blew down barn, unroofed another, destroyed chicken houses, damaged granary and other outhouses. Storm moved eastward and northeastward.
CONNECTICUT Eastern portion	1	P.m.					3	1	Wind	Strong southwesterly winds with gusts estimated at 50 to 55 m.p.h., damaged trees and powerlines in vicinity of Putnam. Power disrupted for 3 hours.
KENTUCKY Clay County	1						4	4	Wind	Winds described as "tornado-like force" destroyed several homes and tobacco barns, with additional damage to other buildings. Sheet-metal roofing from coal company tippie carried 1/4 mile.
TENNESSEE Roane County	1	P.m.						1	Electrical and wind	At Kingston, wind blew shingles off several roofs and downed trees. At Harriman, numerous transformers damaged and fragments from lightning-struck tree broke house window.
	1									Minor storms also reported at Ashburnham, Mass.; in Cleveland County, N. C.; at Jefferson City and near Knoxville, Tenn.; and near Colorado City, Tex.
OREGON Scattered points over State	1-2	Afternoon -evening					4	4	Electrical and rain	Scattered, relatively violent lightning accompanied by locally heavy rains. Several head sheep killed in west, some homes and appliances damaged by lightning. Rains

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
OREGON (cont'd.)										damaged hay, produced erosion in summer fallow fields, and caused loss to strawberries just beginning to ripen. Damage by rain, \$22,000; by lightning, \$1,000.
TEXAS Galveston (southwest of), Galveston County	2	9:25 a.m.			0	0	1	1	Waterspout	Moved north-northwestward.
ALABAMA Houston County	2	4 p.m.	1/3	200	0	0	3	2	Tornado	Several large trees felled, with one snapped off several feet above ground; 9 buildings damaged 1 mile north of Columbia. Crop damage to corn which was blown in all directions.
GEORGIA Valdosta, Lowndes County	2	4:30-6 p.m.	2				3	2	Wind, electrical, and rain	Heavy rains and wind with gusts estimated at 50 m.p.h., caused damage to trees, TV antennas, and utility lines. Crop damage and \$200 of property damage due to heavy rains. Storm moved southeastward.
NEBRASKA Cheyenne County	2	6:30- 9:30 p.m.	20	*12			2	5	Hail	Hailstones 1/2 to 1 inch in diameter. Storm moved eastward.
NEBRASKA Lake McConaughy	2	7:30 p.m.			2		2	1	Wind	Boat in lake capsized, 2 persons drowned.
ALABAMA Cropwell (near), St. Clair County	2				1		1	1	Electrical	Woman hit by lightning as she started to go in house out of thunderstorm.
ALABAMA Pleasant Grove community, Marshall County	2					2	1	1	Electrical	Woman and small daughter knocked unconscious by lightning when standing just inside door of home.
	2									Minor storms also reported in Coffee and Toombs Counties, Ga.; at St. Joseph, Mo.; and at Hulett, Wyo.
SOUTH DAKOTA Northern Black Hills	2-3	Night					4	4	Hail	1.15 inches of rain caused flooding near Newell. Hail damaged crops, buildings and cars at Nisland. Storm moved southeastward.
TEXAS Corpus Christi (7 miles east of), Nueces County	3	7:40- 8:25 a.m.			0	0	1	1	Waterspout	About 1,000 feet long; moved slowly south-southwestward.
IDAHO Eastern counties	3	Early afternoon					3		Rain, hail, and wind	Extensive hail damage from Inkam to Arimo, with heaviest damage in vicinity of McCammon where alfalfa loss estimated at 50 percent and grain loss 30 percent. Also some damage to buildings. Scattered hail damage to crops in Bingham and Power Counties. Wind knocked out 4 plate-glass windows from store at Grace, Caribou County, tore off part of house roof and ripped door and some aluminum sheeting from grain elevator. Extensive crop damage.
WYOMING Shell (near), Big Horn County	3	3 p.m.		400	0	0	4	3	Tornado	Tornado moved northeastward.
IDAHO Lewis County	3	Afternoon							Rain, hail and electrical	Flash floods on creeks west of Nezperce blocked roads and washed out several bridges and section of railroad. Hail widespread, but damage to crops not excessive. Lightning destroyed barn, containing 500 bales of hay and a number of farm tools.
NEBRASKA North Platte (5 miles north- west of), Lincoln County	3	4:44 p.m.			0	0	1	1	Funnel aloft	Remained aloft.
WYOMING Gillette (7 miles east of), Campbell County	3	5:35 p.m.	1	10	0	0	1	1	Tornadoes	Moved northeastward over open range, no damage. Evidently 2 funnels.
IOWA North-central and northeast- ern portions	3	Afternoon -evening				1	4	1	Rain, wind and electrical	Buildings and contents, streets, utilities, and sewers damaged by rain, wind, and lightning. 1 person injured by lightning.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Mobridge, Walworth County	3					1			Wind	Shepherd received broken back when sheep wagon demolished in storm.
SOUTH DAKOTA Eastern sections	3								Hail	In scattered areas.
	3									Minor storms also reported at Lebanon and New Haven, Mo.; at Redfield, Spearfish, and Wessington Springs, S. Dak.; and in Basin area, Wyo.
MINNESOTA, Southeastern portion	4	A.m.					4	2	Rain	Heavy rains, up to 5-1/2 inches in Rochester area, eroded fields, washed out crops, and damaged roads and bridges. Minor flooding occurred along Cannon, Zumbro, and Root Rivers.
LOUISIANA Jefferson Parish	4	12:30 p.m.			0	0	1	1	Thunderstorm and water- spout	Large thunderstorm with waterspout over Lake Pontchartrain.
NORTH DAKOTA Bowman County	4	4:15 p.m.	40	*4 - 14			4	4	Hail	Broke windows and damaged cars, houses, and crops. Storm moved eastward.
MINNESOTA Stearns County	4	4:20 p.m.	18	400	0	2	5	1	Tornadoes	3 separate funnels, struck about 20 miles west of St. Cloud. 1 traveled about 18 miles from Albany to near Sauk Rapids, doing damage to 37 farms. 1 near St. Martin damaged 3 barns and injured 2 persons, picking up 1 person and tumbling him 100 feet. Third tornado traveled from Lake Koronis to Pearl Lake doing minor damage to lake cottages. Tornadoes moved east-southeastward.
MONTANA Great Falls, Cascade County	4	4:25 p.m.			0	0	1	1	Tornado	Funnel cloud moving eastward apparently touched ground. No damage reported.
WISCONSIN Woodville (4 miles south- west of), St. Croix and Dunn Counties	4	5:30 p.m.	32	880	19	110	7	4	Tornadoes	2 funnels reported south of Colfax. Tornado speed 52 m.p.h. Tornado moved east-northeastward.
WISCONSIN Chippewa Falls, Chippewa County	4	6:45 p.m.	12	600	4	56	6	1	Tornadoes	3 funnels seen. Storm moved east-northeastward.
WISCONSIN Ladysmith (10 miles north of), Rusk County	4	7 p.m.	15	200	0	0	4	1	Tornado	Skipping path east-northeastward.
WISCONSIN Cadott (1 mile west of), Chippewa County	4	7 p.m.	5	300	0	3	5	3	Tornado	Skipping path east-northeastward.
NEBRASKA Milford (south- west of), Seward County	4	7 p.m.	Short	Narrow	0	0	4	2	Tornado	
WISCONSIN Eau Claire to Marathon Counties	4	7:30 p.m.	60	880	4	3	6	4	Tornado	2 funnels reported. Skipped along path from New Fall Creek, south of Stanley, south of Owen to Marathon County; moved east-northeastward.
NEBRASKA Goehner (south- west of), Seward County	4	8-9:30 p.m.	4-6	* 1-1/2			4	5	Hail	Hailstones 1-1/2 to 3 to 4 inches in diameter. Ground covered 2 to 4 inches in center of storm. Storm moved northeastward.
MICHIGAN Alpha, Iron County	4	10 p.m.	5	1760	0	0	°4		Wind, rain, hail, and electrical	Storm moved eastward. Farm buildings badly damaged.
NEBRASKA Sioux County (northern portion)	4	Evening	25	*Sev- eral			3	5	Hail	Heavy fall of hail; ground covered; stones size of golf balls. Storm moved eastward.
SOUTH DAKOTA Eureka, McPherson County	4						3	4	Wind and hail	Flax, corn, and sorghums damaged by small hail.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Robstown (5 miles north- east of), Nueces County	5	9-9:15 a.m.			0	0	1	1	Funnel aloft	
OREGON Northwestern and north- central portions	5	Afternoon					4	4	Rain, wind, electrical and hail	Heavy rains in Willamette Valley damaged considerable amount of strawberries, cracked some sweet cherries both here and at The Dalles; in north-central washed out some roadways, flattened limited amount grain and hay. Winds and lightning combined to cause numerous power service interruptions; a few head of cattle killed by lightning, several line transformers burnt out by lightning strikes. Hail damaged some grain and hay in north-central and a number of homes at Gates. Damage by rain, \$45,000; by hail, \$5,000; by lightning, \$8,000.
PENNSYLVANIA Western part	5	Afternoon -night				1	5	1	Wind, rain, and electrical	Very intense thunderstorm in Greensburg area blew off factory roof, exposing contents to heavy rain resulting in \$90,000 damage. Several other homes in the area damaged. Lightning-fired houses also destroyed in Erie, State College, and Franklin.
MONTANA Hardin (4 miles north of), Big Horn County	5	5 p.m.	50	*2					Hail	Hailstones up to 3 inches in diameter. Heavy crop damage. Storm moved southeastward.
PENNSYLVANIA Honesdale, Wayne County	5	10 p.m.				1	3	1	Electrical	Bolt of lightning knocked 16-year old boy to ground and started fire in nearby home, destroying structure.
	5									Minor storms also reported at Washington, Ind.; and at San Antonio, Tex.
WASHINGTON Entire State	5-6	Night					3		Rain and electrical	Heavy rain in Longview and Vancouver areas damaged roads and flooded basements in low areas. Lightning damaged power-and communication lines in various localities. Several grass and small forest fires started by lightning in Cascades and in east.
WEST VIRGINIA Mill Run (5 miles north of Parsons), Tucker County	5-6	Night			1	9	1	1	Electrical	Boy killed and 9 other persons knocked unconscious when bolt of lightning struck tent in which they were sleeping.
	5-6									Minor storm also reported near Buckhannon, W. Va.
UTAH Pleasant Grove area	6	11 a.m.- noon	35					5	Hail	Storm moved northeastward.
UTAH Midway area, Wasatch County	6	1:30- 2:30 p.m.	5	1760				4	Hail	3/4 inch hailstones covered ground to depth of several inches, causing \$30,000 damage to crops (damage to grain not included since estimate not available). Storm moved northeastward.
NORTH CAROLINA Forsyth County	6	2 p.m.					4		Electrical	Lightning struck television transmitter and destroyed transformer and other parts.
ARKANSAS Junction City, Union County	6	3 p.m.	1/4	440			4	1	Wind	2 houses damaged and trees damaged and destroyed. Storm moved westward.
MONTANA Drummond, Granite County	6	3 p.m.	25- 30	1320			1	1	Hail	Hailstones up to 3/4 inch in diameter. Storm moved eastward.
ALABAMA Baldwin County	6	4 p.m.			1		1	1	Electrical	11-year old boy killed coming from field where he was plowing.
COLORADO Mesa County	6	4:20 p.m.					°5		Rain	Northeast of Grand Junction, heavy rain over Book Cliff mountains funneled into Indian Draw, causing 15-foot wall of water to flood area through Grand Valley to Colorado River. Many homes, businesses, etc., suffered water damage in Grand Junction area.
KANSAS Kiowa County (eastern part)	6	4:20-4:30 p.m.	25	*6	0	0	4	5	Tornado, hail, wind, funnels aloft	Thunderstorm moving northeastward developed to serious proportions south of Greensburg. Hail and severe winds caused crop damage over area of 100 to 150 square miles. Hailstones ranged in size up to near 1 inch in diameter. Winds estimated at 75 to 80 m.p.h. Highway Patrol car picked up and spun around 2 or 3 times when trooper approached near center of storm. 1 tornado observed to skip across country and 2 funnels aloft sighted. Trees, TV antennas,

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS (cont'd.)										and window lights broken; communication and utility lines cut; granarys and porches blown away; Rock Island Depot, several sheds west of Haviland, machine shed and large storage barn 1-1/2 miles northeast of Haviland blown away; and house 6 miles northeast badly twisted. Tornado path about 6 miles long. Damages by tornado \$5,000 to property; by wind \$1,800 to property and \$52,000 to crops; by hail \$1,800 to property and \$48,000 to crops.
OKLAHOMA Orlando, Logan County	6	4:30 p.m.					4	1	Electrical	Lightning struck church and barn, with resulting fires.
IDAHO Northern and western counties	6	Afternoon -evening					4		Wind, hail, rain, and electrical	In Bonner County, lightning strikes on power equipment cost power companies hundreds of dollars in equipment and labor costs and killed unestimated number of livestock. In Nezperce County, lightning fired barn full of hay, resulting in loss estimated at \$10,000. Hail fell in Latah and Lewis Counties with only minor crop damage, but in Payette and Canyon Counties hail damage serious. Orchards in Payette Fruitland area sustained some damage and grain, hay, and sugar beets all damaged in spots. Extensive crop damage.
MONTANA Great Falls (5-10 miles east of), Cascade County	6	5-6 p.m.					1		Hail	Considerable damage mostly to grain crops. Largest hailstone 3/4 inch in diameter. Storm moved southeastward.
KANSAS Reno County	6	5:30 p.m.			0	0	1	1	Funnel aloft	Funnel cloud, moving northeastward observed high over Sylvia by Highway Patrolman.
MONTANA Craig, Lewis and Clark County	6	6 p.m.	8	*4			3	4	Hail and rain	Average diameter of hailstones 1/2 inch. Property damage to telephone equipment from runoff of heavy rain.
OKLAHOMA Kiowa and Caddo Counties	6	6:55 p.m.	1/2	15- 35	0	0	3		Tornado, hail, and wind	Severe thunderstorm that developed northeast of Snyder produced tornado at Cold Springs 40 miles southwest of Eakly with intermittent hail and strong winds between Cold Springs and Eakly. Filling station damaged as funnel hit ground briefly at Eakly. Storm moved north-eastward.
OKLAHOMA Tuttle, Grady County	6	Early evening					4	1	Electrical	Fire resulting from lightning destroyed dairy barn.
TEXAS Wolfe City, Hunt County	6	11 p.m.				1	3		Electrical	Lightning set off explosion in gas main and cracked water main which was ripped two-thirds of way across highway, portion of highway buckled. All residents of nearby home temporarily knocked unconscious, 1 woman hospitalized. Storm moved southeastward.
TEXAS Greenville, Hunt County	6	11:30 p.m.	1	50	0	0	4		Tornado	Moved southeastward. Struck only at airport, destroyed hangar, heavily damaged 5 planes.
TEXAS Orange, Orange County	6				0	0			Tornado (suspected)	
	6									Minor storms also reported at Cedaredge, Colo.; near Eldorado, Kans.; in Cabarrus and Stanly Counties, N. C.; at Oklahoma City, Okla.; and near Celeste, Tex.
OREGON Northern portion	6-7	After- noon					4	4	Electrical, rain, wind, and hail	Lightning accompanied in various areas by rain, high winds, or hail, in some cases by combination of 2 or all 3. 2 milk cows killed by lightning in north-central. Rains damaged substantial amount of hay and strawberries, and caused further erosion to summer fallow fields. At La Grande, hailstones up to 1-1/4 inched in diameter. Seed crops of grass and some alfalfa flattened by rains in central. Damages by rain, \$20,000; by lightning, \$2,000; by wind, \$6,500; by hail, \$21,500.
KANSAS Anthony (8 miles west of), Harper County	7	1 a.m.			0	0	1	1	Funnel aloft	Funnel cloud moving southeastward observed by Highway Patrolman, who followed it for 14 miles.
KANSAS Mayfield (near), Sumner County	7	4:30 a.m.							Wind	Barn destroyed and roof blown across road. 3 electric service poles snapped off and service interrupted for a while.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS Sedgwick County	7	7 a.m.	5	1760		4	4	4	Tornado, hail, and wind	Severe thunderstorm about daybreak caused crop and property damage along path from west of Haysville to southeast part of Wichita. Hail ranged in size from peas to duck eggs. Crops damaged 80 to 100 percent. Several trailers blown over, 3 barns shattered by wind. Near east end of path, barn blown apart by tornado which formed just before hitting barn. Man, his wife, and 2 children injured and several head of livestock killed. Wind speeds reached 80 m.p.h. Utility lines damaged. Crop damage from hail. Property damage \$15,000 from wind, and \$10,000 from tornado.
MONTANA Great Falls, Cascade County	7	12:22 p.m.			0	0	1	1	Funnel aloft	Moved eastward, visible to north for 16 minutes.
MONTANA Hobson vicinity, Judith Basin County	7	1 p.m.	15	*2			1	4	Hail	Hail pea-sized. Storm moved eastward.
MONTANA Columbus (15 miles north- northeast and northwest of), Stillwater County	7	1-5:30 p.m.	60	*3			3	5	Hail	Largest hailstones egg size. 2 other storms in area one at 3 p.m., another at 5:30 p.m. Storm moved eastward.
MONTANA Molt-Acton area, Still- water and Yellowstone Counties	7	2 p.m.	16	*14			4	5	Hail	Series of 3 storms through this area. Hailstones up to 1-1/2 inches in diameter. Property damage mostly to roofs, crop damage to winter wheat. Storm moved east-northeastward.
MONTANA Belgrade, Gallatin County	7	2:30 p.m.	30	*2			2		Hail	Hailstones up to 1-1/4 inches in diameter. Light to moderate crop damage. Storm moved eastward.
MINNESOTA Wilkin County	7	3 p.m.	10	* 1/2-1				4	Hail	Hail 1/4 inch in diameter damaged crops.
GEORGIA Statesboro (20 miles south-south- east of), Bullock County	7	3:30 p.m.			0	0	1	1	Funnel aloft	Funnel observed moving south-southeastward.
TEXAS Luling (4 miles south- west of), Caldwell County	7	3:30 p.m.			0	0	1	1	Funnel aloft	Moved southwestward.
MONTANA Worden - Hunt- ley area, Yellowstone County	7	4-6:15 p.m.	6	* 1-1/4			3	5	Hail	2 other storms in same area at 5:10 and 6:15 p.m. Hailstones up to 1-1/4 inches in diameter. Storm moved eastward.
LOUISIANA Westwego, Jefferson Parish	7	4:30 p.m.						1	Electrical	Lightning-struck oil storage tank, setting it afire; damage given as heavy with no dollar estimate.
MONTANA Billings, Yellowstone County	7	5:55 p.m.	10	*4			6	5	Hail	Hailstones up to 2 inches in diameter. Storm moved east-northeastward.
MONTANA Olive, Powder River County	7	6:30 p.m.	40	* 2-1/2			3	4	Hail	Average diameter of hailstones 1 to 1-1/2 inches. Storm moved eastward.
OKLAHOMA Banner, Canadian County	7	10 p.m.					5	1	Electrical	Lightning struck school building which was destroyed by fire.
SOUTH DAKOTA Nisland and Newell, Butte County	7	10 p.m.	65	*5			5	4	Wind and hail	Falling trees caused considerable powerline damage, in Nisland and Newell areas. Storm moved southward.
MINNESOTA Deer River (near), Itasca County	7	P.m.			1				Electrical	Lightning strike killed fisherman on lake in metal boat.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Castle Rock, Butte County	7		65	*5			4	4	Wind and hail	Large hailstones size of base balls killed several hundred lambs and sheep. Storm moved southward.
SOUTH DAKOTA Moreau River and Sulphur Creek	7							4	Rain	Runoff of storm.
	7									Minor storms also reported in Savannah area, Ga.; in Eldorado area, Kans.; near Dillon, Mont.; and at Blackwell, Okla.
MONTANA Broadus, Boyes, and Biddle areas, Powder River County	7-8- 9						4	4	Hail	Property damage includes \$1,000 livestock loss.
KANSAS Clay Center, Clay County	8	1 a.m.							Electrical	Bolt of lightning struck corner of downtown store, knocking loose some sections of masonry. All but 5 bulbs of downtown street lighting system burned out. Electrical and telephone service also interrupted for several hours.
INDIANA Ogden Dunes (3-1/2 miles east of), Porter County	8	5:30 a.m.			0	0	4	1	Tornado	3 trailers and several large trees blown down at Shadyside.
ILLINOIS Abingdon, Knox County	8	12:30 p.m.				1		1	Electrical	Man struck while talking on telephone.
IOWA Webster County	8	1 p.m.					5	4	Rain	Flooded buildings and damaged crops.
IOWA Hardin to Buchanan Counties	8	1:30-3 p.m.	100	*30			5	6	Wind, rain, and hail	Buildings, utilities, crops, and cattle damaged by strong winds, heavy rain, and hail. Storm moved east-southeastward.
MONTANA Crow Agency, Big Horn County	8	2 p.m.		* 2-1/2			1		Hail	Hail up to 1 inch in diameter. Heavy crop damage. Storm moved eastward.
OREGON Corvallis (near), Benton County	8	2-2:30 p.m.			0	0	1	1	Funnel aloft	Definite funnel cloud with trailing vortex moved east of city, but apparently did not touch ground at any point.
MONTANA Warm Springs, Deer Lodge County	8	2:45 p.m.	2-3	*2-3			4	3	Hail and rain	Largest hailstones 1-1/4 inches in diameter. Most damage at State Hospital. Storm moved eastward.
MONTANA Colstrip, Rosebud County	8	3 p.m.	5	880						Hail up to 1-3/4 inches. Storm moved eastward.
WYOMING Casper (north of), Natrona County	8	3:20 p.m.			0	0	1	1	Funnel aloft	
KANSAS McPherson and Saline Counties	8	3:30-7 p.m.	40	*5					Wind	Various communities over the county reported some wind damage to roofs, porches, and trees. Crops also suffered from rain and wind. Main damage path was from Windom to Salina. Wind gusts estimated at 90 m.p.h. Storm moved northeastward.
IOWA Dubuque to Muscatine Counties and eastward	8	Afternoon	80	*100	0	4	5	6	Wind, electrical, hail, rain, and funnels aloft	Buildings, utilities, and crops damaged by wind, lightning, hail, and rain. 4 persons injured when car hit by lightning. Unconfirmed reports of funnel clouds; best evidence appears in vicinity of Wheatland. Storm moved east-southeastward into Illinois.
OREGON Northern portion	8	Afternoon					4	4	Hail, wind, rain, and electrical	Hail and wind damage more severe in north-central and northeast, with considerable lightning in northwest. At Baker, a number of homes damaged by hail or wind and some field crops hurt. Heavy rains in central caused erosion, knocked down limited amount of grain. Damage from lightning and wind to power service and installations in west. Damages by wind, \$5,000; by hail, \$25,000; by rain, \$4,000; by lightning, \$2,000.
WYOMING Hawk Springs, (2 miles south and 3 miles east of), Goshen County	8	Afternoon		100	0	0	4	1	Tornado	

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
WYOMING Douglas (60 miles north of), Converse County	8	Afternoon					4	3	Hail	Some livestock killed.
WYOMING Casper (15 miles northeast of), Natrona County	8	4:30 p.m.			0	0	1	1	Funnel aloft	Pilot reported.
IDAHO Nezperce, Latah, and Clearwater Counties	8	Late afternoon					3		Rain, hail, and electric- cal	Extensive damage to power facilities from light- ning strikes, and considerable disruption of power and telephone service reported over wide areas. Heavy rains caused flash floods at Arrow Junction and on Webb Creek Road. Boulders washed onto State Highway 42, blocked traffic 1-1/2 hours. Several stalled cars pulled from water on Webb Creek Road. Tracks of Camas Prairie Railroad covered with mud and debris for a couple of hundred yards. Hail did heavy damage to crops, particularly peas and lentils in Genessee area.
ILLINOIS Northeastern half	8	Late afternoon -evening							Wind, rain, and hail	Numerous heavy thunderstorms caused scattered damage principally to trees and overhead wires and mainly in area extending from Moline-Mt. Carroll area southeastward to vicinity of Kankakee and Hoopeston. Reasonable damage estimates not available.
IOWA Wapello and Van Buren Counties	8	5 p.m.	1/4	50	0	0	3	1	Tornado (suspected)	Destroyed farm buildings on 2 farms; moved northeastward.
COLORADO Hudson, Weld County	8	5-6 p.m.	5-10		0	0	3		Tornado	Funnel cloud sighted 3 miles west of Hudson at 5:15 p.m., 300 to 400 feet above ground, moved eastward and northeastward passing just north of town. Funnel believed to have touched ground briefly a few miles east of Hudson, destroying barn and damaging other buildings on 2 farms.
INDIANA Rensselaer, Jasper County	8	5:30 and 9 p.m.			0	0	5	3	Tornadoes, and rain	2 tornadoes 3 hours apart. Several buildings damaged or destroyed. Rain flooded fields. Many trees blown down. Crop damage by rain.
KANSAS Riley County	8	5:45- 5:50 p.m.			0	0	1	1	Funnel aloft	Funnel cloud observed moving northeastward over College Hill section northwest of Manhattan observed by a number of persons. It came to within 50 to 100 feet of ground.
WYOMING Cheyenne, Laramie County	8	6 p.m.	8	5000			4	3	Hail	Hailstones to 1-1/2 inches. Storm moved south- ward.
TENNESSEE Shelby and Fayette Counties	8	6 p.m.						1	Electrical and wind	At Memphis, power and phone service was dis- rupted by trees blown on lines and by light- ning damage to transformers. In Raleigh- LaGrange-Bartlett area, several barns, sheds, and other outbuildings blown down.
INDIANA Richmond, Wayne County	8	6:05- 6:55 p.m.					4	1	Wind and hail	6 airplanes damaged. 1/2 inch hail.
ILLINOIS Kinsman (1/2 mile north of), Grundy County	8	6:30 p.m.	1	Narrow	0	0	3		Tornado	Damage to farmstead. Tornado moved southeast- ward.
NEBRASKA Scottsbluff County (west- ern portion)	8	6:30- 8:30 p.m.	15- 20				5	5	Rain and hail	Rain damage was washouts. Hailstones up to size of baseballs. Property damage by rain. Storm moved east-southeastward.
ILLINOIS Melvin, Ford County	8	7 p.m.	1	Narrow	0	0	4		Tornado	3 farmsteads damaged. Tornado moved southeast- ward.
ILLINOIS Cullom (1/4 mile south of), Livingston County	8	7 p.m.	Short	Narrow	0	0	2		Tornado	Minor damage at 1 farmstead. Tornado moved southeastward.
INDIANA Redkey, Jay County	8	7:15 p.m.				2	4	4	Wind, rain, hail, and electrical	Trailer turned over. Utilities damaged. Base- ments flooded. Some wheat damaged. Property damage by wind, crop damage by hail.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
INDIANA Kokomo, Howard County	8	7:20 p.m.			0	0	1	1	Funnel aloft	
TEXAS Abilene (11 miles north- east of), Taylor County	8	7:30 p.m.	3/4	65- 75	0	0	2		Tornado	Damaged small farm buildings and trees; moved southeastward.
TEXAS Abilene area, Taylor County	8	7:30- 10 p.m.	150	*2			4		Wind	Damage to building under construction at Abilene and to buildings at nearby Dyess Air Force Base. Grain loss over small area 25 to 100 percent. Storm moved southeastward.
TEXAS Sweetwater area, Nolan County	8	7:30- 10 p.m.	1	1320		6	5	5	Wind and hail	85 m.p.h., winds, gusts to 110 m.p.h.; 2 warehouses completely destroyed, automobile garage unroofed, utility lines out, many roofs damaged and windows broken, trees downed. Oat and wheat crops damaged. Injuries minor from flying glass. Storm moved southeastward.
INDIANA Wabash, Wabash County	8	7:35 p.m.			0	0	1	1	Funnel aloft	Funnel moved northward about 2,000 feet above ground.
INDIANA Kokomo, Howard County	8	8:02 p.m.			0	0	1	1	Funnel aloft	Funnel moved eastward.
INDIANA North Man- chester, Wabash County	8	8:44 p.m.			0	0	1	1	Funnel aloft	
INDIANA Frankton, Madison County	8	8:50 p.m.			0	0	1	1	Funnel aloft	
INDIANA Monon, White County	8	9 p.m.					6	1	Electrical	Lightning and resulting fire destroyed building of stone-crushing company.
INDIANA Summitville, Madison County	8	9:36 and 10:54 p.m.			0	0	1	1	Funnel aloft, rain, and wind	Funnel moved from near Summitville passing over Gaston. Air very still during passing, but was followed by heavy rain and wind. Very high winds and heavy rain struck Summitville at 10:54 p.m. Storm moved eastward.
INDIANA Howard County	8	10 p.m.					5		Rain and wind	At Kokomo, torrential rains flooded streets and basements. Utilities services interrupted and severely damaged. (Rain damage \$50,000, wind \$30,000.) At Ruzicka Airport, 3 airplanes and 2 hangars blown over with a loss of \$6,000.
INDIANA New Castle, Henry County	8	11:24 p.m.			0	1	5	1	Tornado	Grocery store severely damaged and truck turned over.
INDIANA Groomville (near), Tipton County	8	P.m.			0	0	3	1	Tornado	60-foot mobile home overturned.
	8									Minor storms also reported in Randolph County, Ark.; in central Adams County, Colo.; at Trenton and Vicksburg, Mich.; at Hayti, Mo.; at Whitehall, Mont.; at Oakland, Tenn.; and at Tye, Tex.
OHIO West-central portion	8-10								Rain	Severe thunderstorms daily in connection with stagnated west-east cold front. Total rainfall in 3-day period ranged upward to 6 inches, causing widespread flooding along streams and in low spots. Worst in drainage basin of Great Miami River where it was described locally as "worst since 1913." Extensive flood damage to property and crops, primarily to corn in lowlands and to hay just cut. Many thousands of acres of cropland inundated. One crop damage estimate was for \$1 million in 14 west-central counties. Among places reporting especially heavy rains were Dayton, Eaton, Piqua, Greenville, Kenton, Troy, Springfield, Versailles, and Delaware.
MISSISSIPPI Pascagoula (2 miles south of), Jackson County	9	6:50 a.m.			0	0	1	1	Funnel aloft	
INDIANA Angola, Steuben County	9	9:40 a.m.			0	0	1	1	Funnel aloft	State police sighted funnel cloud moving eastward.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
WYOMING Yoder area, Goshen County	9	Morning	50				4	4	Rain, and hail	Several small creeks flooded with damage to farm lands and some farm buildings as well as to buildings and railroad in Yoder. Crop damage from hail and flooding. Storm moved eastward.
TEXAS Port Arthur, Jefferson County	9	12:45 p.m.			0	0	1	1	Funnel aloft	
TENNESSEE Linary (near), and Crossville, Cumberland County	9	1:30 p.m.				1	1	1	Electrical	Near Linary, 5-year old boy, struck by lightning while in house, suffered from shock and minor leg damage. At Crossville, electrical equipment damaged in home struck by lightning.
OREGON Baker, Baker County	9	2:20- 2:35 p.m.			0	0	1	1	Funnel aloft	Definite funnel cloud observed for about 15 minutes by a number of persons, some of them trained in weather work, to move along ridge outside of town.
LOUISIANA Orleans Parish	9	3:40 p.m.			0	0	1	1	Funnel aloft	Sighted either over or on edge of Lake Borgne in uninhabited swampland.
SOUTH DAKOTA Ralph, Hard- ing County	9	Afternoon			0	0			Funnel aloft	No damage.
VIRGINIA Roanoke and Halifax Counties	9	4-6 p.m.					3	4	Wind, rain, and hail	Winds reaching 71 m.p.h., at Roanoke did considerable damage to trees, utility lines, and a few buildings. In northern Halifax County widespread damage to crops, especially small grains and tobacco; damage unofficially estimated to \$5,000. Storm moved northeastward.
OHIO Darke County	9	Late afternoon	Short	Narrow			4	2	Wind and funnel aloft	At Versailles, apparently strong, straight-line wind, although distance over which some debris carried suggests there might have been tornadic action. Barn, housing school buses, wrecked, and part of roof removed from school. Pilot report indicates observance of funnel cloud 33 miles northwest of Dayton.
NEBRASKA North Platte (50 miles north of), Thomas County	9	5:20 p.m.			0	0	1	1	Funnel aloft	
TEXAS Anson (near), Jones County	9	5:30 p.m.				7	4		Sand	Caused pile-up of 6 cars.
INDIANA Fowler, Benton County	9	5:30 p.m.			1		1	1	Electrical	Boy killed by lightning while answering telephone.
INDIANA Veedersburg, Fountain County	9	6:15 p.m.			0	0	1	1	Funnel aloft	Sighted moving southeastward.
INDIANA Lapaz (near), Marshall County	9	6:40 p.m.			0	0	1	1	Funnel aloft	Sighted moving northward.
INDIANA Marion, Grant County	9	6:40 p.m.					4	3	Wind, rain, and electri- cal	Severe thunderstorms flooded fields, streets, and basements. blew down trees, and cut utility services. Crop damage by rain.
INDIANA Zionsville, Boone County	9	7:30 p.m.			0	0	1	1	Funnel aloft	Sighted moving northward.
NORTH DAKOTA Grand Forks, Grand Forks County	9	7:30- 8:30 p.m.							Wind, hail and rain	
NORTH DAKOTA McIntosh and Dickey Counties	9	8 p.m.			0	0	4	1	Funnel aloft and wind	Funnel sighted, but did not touch ground. Strong winds wrecked small building northeast of Ashley. Also 16 miles northeast of Ashley, damage reported to some buildings. 21 miles northeast of Ashley, funnel sighted by farmer. On his farm, wind picked up 12 by 16 foot building and set it down, bottom side up, a hundred feet away. Wind damaged windmill and 2 buildings on another farm. Funnel seen 80 miles southwest of Fargo. Storm moved eastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
INDIANA Union City, Randolph County	9	9 p.m.					4	3	Wind, rain, and electrical	Wind and lightning damage scattered throughout area and additional rains flooded basements and much land. Crop damage by rain.
INDIANA Hamilton, Madison County	9	9:25 p.m.			0	0	5	1	Tornado	Business building and homes damaged.
TEXAS Winters area, Runnels County	9	9:30-10 p.m.	100	*75			°5		Hail and rain	50 to 100 percent crop losses reported as far as 12 miles north and 9 miles east of town. In town, roofs, windows, and cars damaged. Part of squall line. Storm moved southward.
TEXAS Waco (29 miles west-south- west of), McLennan County	9	11:38 p.m.			0	0	1	1	Funnel aloft	
INDIANA Wilkinson (north of), Hancock County	9	11:55 p.m.					4	1	Electrical	Lightning and resulting fire destroyed barn, 6 hogs, hay, and tools.
KENTUCKY Barren County	9	P.m.					4	3	Wind and electrical	Heavy thunderstorm with lightning killed 5 cattle and destroyed barn and farm machinery. Many power outages reported.
	9									Minor storms also reported at Louisville, Ky.; in Forsyth County, N. C.; and in Lemmon, Mobridge, and Winner areas, S. Dak.
INDIANA Central portion	9-15								Rain	Rainfall of 8 to 12 inches flooded fields, base- ments, and houses and washed out roads and bridges.
INDIANA Muncie, Delaware County	10	3 a.m.					4	1	Electrical	Barn destroyed.
ARKANSAS Bruno, Boone County	10	7:30 a.m.				1	1	1	Electrical	Child injured by lightning.
ILLINOIS North-central portion	10	Early morning					4		Wind, hail, and electri- cal	Heavy thunderstorms reported from Princeton, Braidwood, Paxton, and Rantoul with lightning damage at Rantoul and Princeton. No estimate of crop damage available.
IOWA Dubuque County	10	1:30 p.m.	1	50	0	0	3	2	Tornado	Destroyed farm buildings; moved northeastward.
INDIANA Noblesville (near), Ham- ilton County	10	2 p.m.			0	0	1	1	Funnel aloft	Sighted moving northeastward.
INDIANA Merom, Sullivan County	10	2:28 p.m.			0	0	0	0	Funnel aloft	Sighted moving northeastward.
IOWA Van Buren County	10	3:28 p.m.			0	0	1	1	Funnel aloft	Reported by Ground Observer Corps.
KANSAS Ness, Pawnee, Hodgeman, and Edwards Counties	10	Late afternoon	45	*3				5	Hail	Variable hail damage from 7 miles southeast of Ness City to southeast of Kinsley. Hailstones ranged from marbles to golf balls in size. Storm moved southeastward.
KANSAS Ford and Kiowa Counties	10	Late afternoon	10	2					Hail	Hail damage extended from 1 mile northwest of Bucklin to within 2 miles of Greensburg. Another hail strip extended along southern edge of Kiowa County. Wheat damage up to 90 percent reported. Storm moved southeastward.
MISSOURI Pilot Grove, Cooper County	10	4:30- 4:35 p.m.			0	0	1	1	Funnels aloft	2 funnels sighted.
KANSAS Lyon County	10	4:30-5 p.m.	3				4	4	Hail	Main portion of damaged area was northwest of Emporia. Numerous hailstones 3 to 4 inches in diameter. Crops battered into ground, trees stripped of leaves and small branches, windows broken, automobiles and roofs dented and bat- tered. Greenhouse lost 446 panes of glass. Hail fell at Emporia unaccompanied by rain for a few minutes. Storm moved southeastward.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Tipton, Moniteau County	10	4:35 p.m.			0	0	1	1	Funnel aloft	Sighted moving eastward.
MISSOURI Slater, Saline County	10	4:55 p.m.			0	0	1	1	Funnel aloft	
MISSOURI Glasgow- Fayette area, Howard County	10	4:55 p.m.			0	0			Tornado	Funnel moving northeastward observed to touch ground briefly by Weather Bureau employee.
MISSOURI Saline City, Saline County	10	5 p.m.			0	0			Tornado	Funnel moving northeastward dipped to earth briefly, damaging some farm buildings. Had been observed as funnel aloft over Marshall and near Slater.
MISSOURI Jerome, Dixon, Rolla, and Tuscumbia in Phelps, Pulaski, and Miller Counties	10	5-5:30 p.m.					5	4	Rain and hail	Heavy rains 4 to 6 inches in Rolla-Jerome area. Heavy hail in Dixon, with stones up to 3 inches in diameter.
MISSOURI Benton, Scott County	10	5 p.m.- mid- night					3		Rain	5 to 7 inches of rain.
KANSAS Harvey and Butler Counties	10	5:10- 5:20 p.m.	30	*5					Hail and wind	Damaged areas extended from near Newton to west of Eldorado. Heaviest hail fell at and near Whitewater where stones size of baseballs found. Crops damaged 16 to 35 percent and windows broken, roofs had holes punched in them and were damaged by the pounding. Exposed cars badly damaged and oil derricks and buildings received heavy damage from wind. Storm moved southeastward.
KANSAS Elmdale (12 miles west of), Chase County	10	5:30-6 p.m.			0	0	1	1	Funnels aloft	2 funnel clouds observed moving northeastward. These were of dark color and moved very rapidly.
KANSAS Eldorado, Butler County	10	5:44- 5:50 p.m.	8	300	15	50	6		Tornado, wind, and hail	Tornado formed in clouds and almost immediately hit ground 7 miles west and 2 north of business portion of Eldorado. Rate of travel estimated at about 30 m.p.h. Funnel cloud had grey-whitish appearance instead of usual black coloring. Damage path through new residential section of southwest portion of town. Hail of golf-ball size fell for a distance of 1/2 mile on either side of tornado path. Attendant violent winds contributed to damage. Elementary school and approximately 200 homes and many house trailers destroyed or badly damaged. 4 main electric trunk lines severed. 3 miles of telephone lines and 97 poles destroyed, these alone were a loss of \$55,000. 441 families affected. Some unusual features were; a government bond found 60 miles southeast of Eldorado that bore Eldorado address, eight \$100 bills found intact in envelope far from owner's home in Eldorado, boy found with a dozen splintered sticks protruding from his chest, woman sucked through window and blown 60 feet from house, and beside her was found a broken record, entitled "Stormy Weather", automobile carried more than a block and jammed through roof where it lodged between a bed and a dresser. Storm moved east-southeastward.
MISSOURI Macon, Macon County	10	6 p.m.					3	4	Hail, and wind	Hail, up to golf-ball size, and strong winds. Widespread damage to roofs, windows, gardens, and crops.
TEXAS Abilene (north), Taylor County	10	6:02 p.m.			0	0	1	1	Funnel aloft	
MISSOURI Butler, Bates County	10	6:25 p.m.			0	0	1	1	Funnel aloft	
KANSAS Stanton, Grant, Has- kell, and Meade Counties.	10	7-8:30 p.m.	60	*7	0	0	4	6	Hail, wind, and funnel aloft	Thousands of acres of nearly ripe grain destroyed or badly damaged in a number of strips from northeastern Stanton County, southeastward across Grant County, Haskell, and into Meade County. Greatest damage and center of storm at and north of Ulysses. Every building

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS (cont'd.)										in Ulysses bore signs of velocity and size of hailstones. Windows, roofs, and north sides of buildings broken and damaged. Mat of foliage and limbs blanketed town after storm. Wheat losses in storm area estimated at 75 to 100 per cent. Most hailstones marble size with a good many as large as golf balls.
KANSAS Cowley, Elk, Wilson, Wood- son, Montgomery, Neosho, Labette, Bourbon, and Cherokee Counties.	10	7-10 p.m.			2	0	4	3	Funnels aloft, wind, hail, and electri- cal	Severe thunderstorm over much of southeast following tornado at Eldorado spawned a number of other severe cells. At Arkansas City, 1 funnel passed over town and a second sighted 3 miles north of town. Wind damage to roofs, TV aerials, power-and communication lines reported over most of this section. Light-ning damaged 2 buildings in Coffeyville and caused outages in telephone service at a number of places. Man fatally burned in Chanute when he picked up or touched fallen power wire. Second man in Chanute met death while clearing away some debris and a tree fell on him. Light-ning killed 6 head of cattle near Uniontown, Bourbon County. Damage estimates herewith are only very partial. Storm moved southeastward
MISSOURI O'Fallon, St. Charles County	10	8:10- 8:30 p.m.			0	0	5		Tornado	Church badly damaged. 9 other buildings damaged in main part of town.
OKLAHOMA Blackwell, Kay County	10	8:44 p.m.			0	0	1	1	Funnel aloft	Funnel aloft reported by Police did not touch ground except possibly in open country north-east of Blackwell. No damage.
MISSOURI Springfield, Greene County	10	10 p.m.- 1 a.m.					2		Wind	Very gusty winds. Plate glass window in store blown out. Several trees downed. Peak gust 60 knots at Weather Bureau Airport Station at Springfield.
TEXAS Eastland (20 miles south- southeast of), Eastland and Comanche Counties	10	10:10- 10:15 p.m.			0	0	1	1	Funnel aloft	
INDIANA Posey County	10	10:30 p.m.					4	1	Wind	Trees and powerlines blown down. Electrical transmission lines for Mt. Vernon plunged city into darkness.
INDIANA Evansville, Vanderburgh County	10	10:30-11 p.m.				2	4	1	Wind	Violent winds, downed trees and power-and communication lines and damaged pleasure craft at Ohio River boat clubs.
ILLINOIS Southern two- thirds	10	Evening							Wind, rain, hail, and electrical	Numerous heavy thunderstorms in area from Kewanee, Pekin, and Kankakee southward to Cairo. Wind gusts to 60 m.p.h., or higher at Alton, Herrin, and Springfield. Much damage to trees and overhead wires. Heavy hail damage to crops in central. Reasonable damage estimates not available.
MISSOURI Illmo, Scott County	10	Evening					4		Rain and wind	Flash floods in Tri-City area. Many trees and wires downed. Unofficial rainfall reports of up to 5 inches.
MISSOURI Flat River, St. Francois County	10	Evening					3		Electrical, rain, and wind	Radio tower hit. 3.50 inches of rain. Minor wind damage.
MISSOURI Fredericktown, Madison County	10	Evening					4	3	Rain and wind	Up to 4.75 inches of rain, accompanied by strong winds. Railroad tracks washed out. Many trees and wires downed. Some local flooding.
MISSOURI Sikeston, Scott County	10	Evening				2			Wind, rain, and electri- cal	Car forced off road by wind. 2 occupants in-jured. Many reports of trees and wires down.
PENNSYLVANIA Statewide	10	Evening- night					4	1	Electrical, wind, and rain	Widely scattered thunderstorms caused \$45,000 damage to houses, barns, etc., by lightning-induced fires.
COLORADO Central Plains	10	Night					4	4	Hail and wind	Heavy thunderstorm activity from Colorado Springs eastward to border caused hail and wind damage to property and crops in scattered areas of El Paso, Lincoln, Cheyenne, and Kit Carson Counties. Wind-driven hailstones 3/4 to 1-1/2 inches caused \$10,000 damage to city-owned housing unit at Peterson Field near Colorado Springs. Severe crop damage reported north of Flagler, south of Limon, and Hugo, and other scattered areas.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KENTUCKY Western portion	10	P.m.					4		Wind	Thunderstorm winds measured to 60 m.p.h., disrupted electrical power, blew roofs off industrial buildings, unroofed Y.M.C.A. building, and destroyed electric tote board at Audubon Raceway at Henderson, with lesser damage in adjacent areas. Many trees toppled and electrical power disrupted by thunderstorm winds estimated at 70 m.p.h., at Morganfield. Storm moved southeastward.
ILLINOIS Ashland, Cass County	10					1		1	Electrical	Man injured by lightning while sitting in restaurant.
	10									Minor storms also reported at Brighton, Colo.; at Petersburg, Ind.; in Keokuk County, Iowa; in Grant County, Kans.; at Boonville, Carthage, Eldon, Farmington, Jasper, Joplin, Jefferson City, Morrison, Perryville, Poplar Bluff, in St. Louis County, and at Troy, Mo.; at Curtis, Nebr.; and in Ottawa County, Okla.
CONNECTICUT Coastal areas	10-11	11 p.m. 10th- 5 a.m. 11th					5	1	Electrical and rain	Early morning thunderstorm hit coastal sections with heavy and intense rainfall as well as numerous lightning strikes. Precipitation totaled 1 to 2 inches. About 4 a.m., total of 1.18 inches in 45 minutes recorded at Noank. Bridgeport measured 1 inch in 1 hour ending at midnight on 10th. Lightning-caused fire damaged home at Old Saybrook with damage estimated at \$35,000. Lightning also struck church steeple at Nichols (near Bridgeport) and homes at New Haven and Trumbull, with small fires resulting. Power and telephone failures affected several thousand homes in east coastal sections.
MISSOURI Cape Girardeau- Jackson areas, Cape Girardeau County	10-11	Late evening 10th- a.m. 11th				2	6	5	Rain, electrical, and wind	Hubble and Boose Creeks overflowed following 4 to 6 inches of rain near Jackson and Cape Girardeau. 50 homes and businesses damaged. Many roads, small bridges, and fences washed out. Many phone and powerlines downed. 2 persons injured when hit by lightning.
CALIFORNIA Northern portion	10-12						2		Hail, rain, and electrical	Low, developing aloft and moving eastward across central on 10th and 11th, set off numerous thunderstorms in north, locally severe. On 10th, hail reported piled up like snow at Cobb Mountain, Lake County, and 1-1/2 inches of rain fell in sudden downpour at Rutherford, Napa County, turning streets into rivers. 1.15 inches of rain fell in 40 minutes 1 mile west-northwest of Oakville at about 2 p.m., and lightning disrupted power service. On 12th, lightning caused many power outages through Yuba-Sutter County Valley and foothill areas. Hail fell at St. Marys College. Lightning damage to powerlines at Hatchet Mountain. Precipitation sufficiently heavy between North Fork of American River and North Fork of Feather River to produce runoff into these streams, unusual for June.
ALABAMA Baldwin County	11	7:54 a.m.			0	0	1	1	Waterspout	Waterspout reported 1/2 mile offshore, moving toward Gulf Shores.
ARKANSAS Batesville, Independence County	11	A.m.							Wind and hail	3 planes damaged at airport; awnings, roofs, and signs damaged; windows broken, and truck crops damaged. Hailstones as large as hens' eggs reported.
MARYLAND Frederick and Carroll Counties	11	1:30 p.m.			0	0			Tornado and wind	Residents in Emmitsburg area saw funnel cloud over mountains northwest of Emmitsburg. Teacher at Taneytown High School observed funnel for 10 minutes. Although considerable wind damage occurred in Emmitsburg-Taneytown area it cannot be attributed to reported tornado as severe thunderstorms prevailed in area.
TEXAS Tahoka (13 miles north of), Lynn County	11	3:20 p.m.			0	0			Tornado (suspected)	
NEBRASKA Scottsbluff (5 miles east- northeast of), Scotts Bluff County	11	3:40 p.m.	3	Narrow	0	0	3	1	Tornado and funnels aloft	A few farm buildings destroyed. 6 funnels observed. Storm moved north-northeastward.
PENNSYLVANIA Franklin, Adams, York, and Dele- ware Counties	11	Afternoon					4		Wind, rain, hail, and electrical	85 m.p.h., winds accompanying severe thunderstorms caused most damage by felled trees and powerlines, windows blown in, and roofs partially or totally blown off. Wheat which was

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
PENNSYLVANIA (cont'd.)										nearly ready for harvest flattened. Storm moved eastward.
MARYLAND Northern and central por- tions and District of Columbia	11	Afternoon -evening					5		Wind, rain, and electri- cal	Strong northeast-southwest oriented squall line associated with well-developed cold front moved eastward. Violent and severe thunderstorms along squall line caused locally heavy damage in scattered districts. 4 miles west of Taneytown, east wall of concrete building blown out. Also, about 1/2 mile from Taneytown roof blown off garage. About 2 miles north of Taneytown on Littlestown Road, large trees blown across road and a number of trees blown down in woods. Emmitsburg-Taneytown area without electricity from 1:45 to 7 p.m. Some trees in yard 4 miles east of Emmitsburg blown over. Carnival badly damaged at Taneytown. Plate-glass window on west side of store about 1 mile north of Taneytown blown in. In Frederick area, heavy rains, falling trees, and lightning strikes from severe thunderstorms between 1 and 3 p.m., caused considerable damage. 149 telephone lines serving 640 telephones knocked out of service. Church steeple struck by lightning, and between Buckeystown and Urbana lightning hit cupola of church, causing fire. Winds blew down carnival and uprooted many trees. In Hagerstown area, gusts of wind up to 100 m.p.h., destroyed 2 airplanes at airport and unroofed several barns. Strong winds in Washington D.C. area brought numerous trees and limbs down on powerlines. Gale force winds with gusts to 61 m.p.h., and heavy rainstorms in Baltimore area snarled traffic and cut some utility services. Several trolley lines in metropolitan area stalled for a time as tree limbs fell across tracks. Light and telephone services disrupted as storms cut swath across western and northern suburbs of city. At Glenn L. Martin Airport, maximum wind 68 m.p.h., recorded by tower. Airplane torn from moorings and blown 1,500 feet across apron and on top of fuel truck. Two other planes damaged, canopy on 1 broken and side of the other caved in. Windows of 15 automobiles broken and 30 windows in hangar apparently knocked out by wind force.
OKLAHOMA Kiowa, Caddo, Canadian, Noble, and Osage Counties	11	5-11 p.m.	3-4	880				4	Hail and wind	Thunderstorms that developed in northern Jackson County produced intermittent hail and winds estimated at 60 m.p.h. Hail averaged 1/2 to 1 inch in diameter in Kiowa and Caddo Counties. No hail reported in Canadian County. Scattered small hail 1/4 to 1/2 inch in diameter and winds 40 to 50 m.p.h., in Noble and Osage Counties. Storm moved northeastward.
OKLAHOMA Cold Springs, Kiowa County	11	5:30 p.m.	1	30	0	0	3	4	Tornado	Severe thunderstorm that developed near Snyder moved northeastward. As storm continued northeast movement, hail and strong winds reported intermittently from Kiowa County across Canadian, Caddo, and Noble to Osage County. Storm had average speed of 35 m.p.h. during this time.
NEBRASKA Sidney (6 miles east of), Cheyenne County	11	6 p.m.	Short	Narrow	0	0	1	2	Tornadoes	3 funnels observed, touching ground in open fields briefly.
TEXAS Estelline, Hall County	11	6:16 p.m.			0	0	1	1	Tornado (sus- pected) and dust	
NEBRASKA Deuel and Keith Counties to Hitchcock County	11	8 p.m.- midnight	65 *	2-1/2	0	0	3	6	Hail and tornado	Small tornado 10 miles north of Trenton. Storm moved southeastward.
KANSAS Cowley County	11	10:56 p.m.			0	0	1	1	Funnel aloft	Funnel cloud sighted 1/2 mile east of Arkansas City.
KANSAS Sedgwick County	11	11:08- 11:25 p.m.			0	6			Tornado	Tornado first reported at Rock Road and U. S. Route 54. At 11:13 p.m., it was about 2 miles further northeast and at 11:25 p.m., a home damaged. Some 50 houses damaged in northern Wichita over 8-block area. Tornado made an extremely loud roar. Upper portion of houses and those on higher ground received most damage. Communication and powerlines broken.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS Elk County	11	11:28 p.m.			0	0	1	1	Funnel aloft	Observed about 4 miles south of Moline.
KANSAS Butler County	11	11:44 p.m.			0	0			Tornado	Tornado, moving eastward struck momentarily at Andover, southwest of Eldorado, damaging several house trailers and a barn. Several head of livestock injured.
KANSAS Newton (2 miles south- east of), Harvey County	11	11:55 p.m.			0	0			Funnel aloft	Sighted moving northeastward.
KANSAS Wellington (4 miles east of), Sumner County	11	11:59 p.m.			0	0			Funnel aloft	Sighted moving northeastward.
TEXAS Chillicothe area, Hardeman County	11	Night					3		Hail, wind, and rain	Heavy losses to wheat and cotton. Outbuildings overturned, barn roof damaged.
	11									Minor storms also reported in northern Clay County, Ark.; at Sterling, Colo.; in Hampden County, Mass.; and in north-central Kearney County, Nebr.
IDAHO Most of State	11-12	Afternoon 11th- through 12th						2	Rain, hail, wind, and electrical	Unusually widespread and moderately severe thunderstorm activity. Rains extremely heavy at a number of places; Boise received 1.23 inches in 2 hours and 2.24 in about 15 hours; Orofino reported 1.46 inches in a little over 1 hour and Nezperce 2.06 in about 2 hours. "Cloud bursts" indicated at numerous points. Some business houses sustained minor flood damage in Orofino, several residents in Boise and a few in Pocatello flooded as storm sewers failed to carry runoff. Crop damage from rain and hail appeared to be severe in a few areas, such as Twin Falls and Cassia Counties, but later reports indicated that crops had made comeback and final damage relatively small, considering size of areas affected. Lightning destroyed 40 tons of hay near Rupert and knocked out power facilities in several localities. Wind lodged grain and hay in several areas and broke powerlines near Mackay.
NEBRASKA Thayer County (southern portion)	12	12-3:30 a.m.	24	10			3	4	Hail and wind	Damage to wheat locally severe. Hailstones up to golf-ball size. Property damage by wind. Storm moved east-southeastward.
KANSAS Lyon County	12	12:0 a.m.			0	0			Tornado	All buildings except the house on farm 5 to 6 miles south of Olpe levelled.
KANSAS Lyon County	12	2:07 a.m.			0	0			Tornado	Reported on ground 10 to 15 miles east of Emporia; moved northeastward.
NEBRASKA Jefferson to Pawnee Counties	12	3:30-6 a.m.	24	*4-6			3	5	Hail and wind	Some windstorm damage. Storm moved eastward.
MISSOURI Fair Grove, Greene County	12	5:30 a.m.			0	0	4		Thunderstorm, wind, hail, and tornado (suspected)	Roof of farm home torn off. Several stacks of barley blown away. (possible tornado. No further details available.)
MISSOURI Jefferson City, Cole County	12	10 a.m.- 9:45 p.m.	10				5	4	Wind, rain, and hail	Wind hit gusts to 75 m.p.h., at airport. Hangar roof blown off at 10 a.m. Heavy rains and some hail. Much local flooding of basements, streets, and small streams. Storm moved southeastward.
MISSOURI Columbia, Boone County	12	11 a.m.					4	2	Rain and electrical	.80 inch of rain in 20 minutes. Storm sewers clogged. Lightning hit several homes. Storm moved southeastward.
MISSOURI Callaway County	12	Morning					3		Rain and wind	Series of thunderstorms swept across county, with heavy rains (up to 3 inches). Wind blew down hangar at Cedar City.
MISSOURI Marshall, Saline County	12	Morning					3		Rain, wind, hail, and electrical	Heavy rains and winds to 60 m.p.h. Hail 1/4 inch in diameter. Lightning hit barn at State School at 4:15 a.m. and then at 10:30 a.m. lightning hit silo.
MISSOURI Cameron, Clinton County	12	During day					5	3	Wind, rain, hail, and electrical	Many roofs damaged. Trees and power- and phone lines downed.

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MISSOURI DeSoto, Jefferson County	12	1:30 p.m.			0	0	3		Funnels aloft, wind, and rain	Power-and phone lines and many trees downed. Heavy rains, with local flooding, 1.82 inches in 1 hour. Wind estimated at 75 m.p.h. Witnesses heard roaring sound as funnels went over. Storm moved northeastward.
KANSAS Meade, Clark, Ford, Edwards, Barton, Rice, Ellsworth, Saline, Dick- inson, and Stafford Counties.	12	3-5:15 p.m.			0	3	4	5	Tornadoes, funnels aloft, wind, and hail	Severe thunderstorm moved northeastward from Meade and Clark Counties with scattered dam- ages from tornadoes, wind, and hail along path. First tornado sighted 11 miles south of Minneola at 3 p.m., which hit ground only momentarily. 2 attending funnels remained aloft. Another tornado touched ground briefly at 3:50 p.m., a few miles southeast of Dodge City. 1-1/2 miles north of Belpre, Edwards County, tornado de- stroyed a number of farm buildings. 2 addi- tional funnels observed. Hail damaged crops and buildings over strip 8 miles long and 4 miles wide, centering about Belpre. Stones about marble size. In Stafford County, 7 miles east and 2 north of Hudson, tornado struck several farms and moved northeastward over short path at about 4 p.m. At Silica, Rice County, about 4:10 p.m., tornado cut path about 1-1/2 miles long and 50 yards wide. Most damage to roof blown from store building. 4:36 p.m., some damage from wind at Lorraine, trees uprooted and stock tank blown away. Funnel cloud sighted several miles southwest and south of Salina from 4:49 to 4:51 p.m., but only small or old buildings blown over by wind. Car blown from highway south of Salina. Between Salina and Abilene, funnel cloud observ- ed at 5:15 p.m. Property damage by tornado, crop damage by hail.
MICHIGAN Plainwell, Allegan County	12	Afternoon					3		Rain	Rainfall estimated at 3-1/2 inches caused local flooding.
NORTH CAROLINA New Hanover County	12	4 p.m.	1	100	0	0	4		Tornado	Struck 2 inhabited areas adjoining Masonboro Sound, destroying or damaging 20 homes and overturning several small craft. Funnel re- ported seen by several persons.
KANSAS Pottawatomie County	12	4:08 p.m.			0	0			Tornado	Moved northeastward, touched ground briefly 4 miles northeast of Manhattan.
MISSOURI Charleston (8 miles north- west of), Mississippi County	12	4:15 p.m.			0	0	1	1	Funnel aloft	
KANSAS Johnson County	12	4:25 p.m.			0	0	1	1	Funnel aloft	Funnel cloud estimated at about 100 feet in length observed south of Overland Park.
KANSAS Wabaunsee, Shawnee, and Jackson Counties	12	4:30- 5:18 p.m.	10	300	1	0	4		Tornado, wind, and electri- cal	Tornado touched ground intermittently over path from 6 miles northwest of Dover to about 10 miles west of Topeka. Funnel sighted both before and after touching ground for quite some distance. Buildings on 2 farms northwest of Dover damaged and a number of fences torn up. Loud roar heard as funnel cloud passed over North Topeka. Lightning caused minor dam- ages at 2 places in Topeka. At Mayetta, woman died from heart attack as she sought refuge from storm.
ILLINOIS Cairo and vicinity, Alexander County	12	Late Afternoon					5		Wind, rain, and hail	Heavy thundersqualls downed trees and overhead wires, damaged buildings, and flattened crops. Wind gusts to 75 m.p.h., before airport anemometer blew away. Estimate of crop losses not available.
MINNESOTA Felton, Clay County	12	5:05 p.m.			0	0	1	1	Funnel aloft	Funnel cloud observed.
KANSAS Doniphan County	12	5:45- 6:10 p.m.	15	200	0	0			Tornado and wind	Over western part of County, farm buildings, grain storage bins, and trees destroyed. 2 funnel clouds seen to come together and after merging funnel hit ground and followed inter- mittent eastward path from 6 miles west of Denton east-northeast past Bendena where last evidence of damage was seen.
KENTUCKY La Center, Ballard County	12	6 p.m.			0	3	4	4	Tornado	Small tornado demolished concrete-block build- ing with lesser damage to several other build- ings. 3 persons in trailer home parked across the street from demolished building suffered

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KENTUCKY (cont'd.)										lacerations and bruises when trailer turned over 4 times. Tornado moved northeastward.
KANSAS Meade (near), Meade County	12	6:28 p.m.			0	0			Funnel aloft	Sighted moving northeastward.
KANSAS Gray County	12	6:45 p.m.	Short		0	0			Tornado	Tornado struck 6 miles north of Cimarron, ripping roof from barn and hurling it 700 feet, slight damage to house.
SOUTH DAKOTA Oahe Dam	12	6:50 p.m.			1				Electrical	Workman killed during electrical storm.
MISSOURI Trenton, Grundy County	12	7:20 p.m.				2	2		Funnel aloft and electrical	Lightning hit barn, injuring 2 persons.
WYOMING Newcastle, Weston County	12	8 p.m.	1	200	0	0	4	1	Tornado	Hangar and airplanes damaged. Tornado moved eastward.
MISSOURI Clarence, Shelby County	12	8:15 p.m.			0	0	1	1	Funnel aloft	
MISSOURI Cairo-Jacksonville area, Randolph County	12	8:25 p.m.			0	0	1	1	Funnel aloft	
MISSOURI Paris (1 mile north of), Monroe County	12	8:38 p.m.			0	0	1	1	Funnel aloft	Sighted moving northeastward.
MISSOURI New London, Ralls County	12	9:10 p.m.			0	0	1	1	Funnel aloft	Sighted moving northeastward.
TEXAS Muleshoe, Bailey County	12	10 p.m.	2	200			4	5	Wind, hail, rain, and electrical	Airport hangar and 4 small planes destroyed, garages, outbuildings, several utility poles destroyed. About 6,000 acres of young cotton severely damaged by hail north of town.
TEXAS Olton, Lamb County	12	10:35 p.m.			0	0	1	1	Funnel aloft	Moved eastward.
ILLINOIS Milford, Iroquois County	12	10:50 p.m.	1-2				4		Wind and rain	Greenhouse wrecked, house unroofed, many trees and overhead wires downed in northeast part of town. Storm moved southeastward.
MISSOURI Sturgeon, Boone County	12	10:50 p.m.			0	0	1	1	Funnel aloft	Sighted moving eastward.
NEW MEXICO Portales, Roosevelt County	12	P.m.			0	0			Wind, rain, hail, and tornado (suspected)	Principal damage to signs, windows, and antennas. Some light structural damage. Considerable evidence of tornado activity.
MISSOURI Hannibal, Marion County	12	Evening							Wind	60 m.p.h., winds.
MISSOURI Shelbina, Shelby County	12	Night			1				Wind, rain, and electrical	Woman injured trying to close door of her house during storm, died later in hospital.
NEBRASKA Holdrege (15 miles north-east of), Phelps County	12	Night					3	4	Hail	
	12									Minor storms also reported at Ashton, Mich.; at Bolivar, Booneville, Connelssville, Macon, Marceline, New Franklin, Richmond, Seymour, near Shackelford, at Steeleville, and Weston, Mo.; and at Cozad, Nebr.
INDIANA Cass and White Counties	13	12:30-12:45 a.m.	9	50	0	0	4	1	Tornado	East of Monticello, barn deroofed and other buildings damaged. Losses also reported at Idaville and Burnettsville to east. Touched ground occasionally.
INDIANA Logansport, Cass County	13	1 a.m.			0	0	4	1	Tornado	House unroofed, another damaged, and lawn furniture carried 600 feet. Tornado moved southeastward.
INDIANA Markleville, Madison County	13	2:30 a.m.			0	1	4	1	Tornado	Carnival damaged badly.

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					Killed	Injured	Property (exclusive of crops)	Crops		
IOWA Wright County	13	3 30 a.m.					4	1	Electrical	Destroyed large barn and contents.
IOWA Van Buren County	13	6:30 a.m.					4	1	Electrical	Burned church.
INDIANA Decatur County	13	6:45 a.m.	3				4	1	Wind	Strong winds from low flying clouds but without funnel characteristics unroofed or damaged a number of farm buildings, blew down trees, and cut utility services in farming area between Forest Hill and Millhousen. Storm moved east-southeastward.
ILLINOIS East-central portion	13	Noon-5 p.m.					5		Wind	Thundersqualls caused damage mostly to trees and overhead wires in area extending from Springfield east and southeastward to Indiana line. Heavy damage near Macon. Damage appeared concentrated along line from Riverton to Blue Mound, Macon, Bethany, Sullivan, and Mattoon. Wind gusts to 65 m.p.h., at Mattoon. Storm moved southeastward.
ILLINOIS Tinley Park, Cook County	13	1:10 p.m.			0	0	1	1	Funnel aloft	Competent observer watched cloud for 10 or 15 minutes, moving eastward.
ILLINOIS Rankin, Ver- million County	13	2:30 p.m.				1		1	Electrical	Woman struck while ironing in her house.
INDIANA Lowell (near) Lake County	13	2:30 p.m.			0	0	1	1	Funnel aloft	
INDIANA Warsaw, Kosciusko County	13	2:30 p.m.			0	0	1	1	Funnel aloft	
MARYLAND Howard and Anne Arundel Counties	13	3-5 p.m.					5		Wind	Portions of eastern Howard County and central portions of Anne Arundel County hit by severe thunderstorms. Large trees uprooted or broken off, 2 tobacco barns blown over, and part of roof of church blown off in Jessup area. Wind damage reported in scattered districts over area from Fort Meade to Severn River, with trees uprooted, limbs broken, buildings damaged, etc. 8 airplanes damaged at Fort Meade. At Odenton, plate-glass windows blown in. Storm moved eastward.
MISSOURI Chillicothe, Livingston County	13	3:40- 4:15 p.m.							Funnels aloft	2 Funnels sighted.
MISSOURI Hannibal, Marion County	13	Afternoon			0	0	1	1	Funnels aloft	
OHIO Champaign County	13	Afternoon			0	0	5	2	Tornado (sus- pected), wind, and rain	Essentially thunderstorm wind associated with squall line, and typical roll cloud which looked like "big, rolling, black cloud - white on top." While there was extensive wind damage in area just north of Urbana, it was most severe in Westville section where barn and large-capacity corn crib demolished or severely damaged. Storm moved eastward.
OHIO Northern portion	13	Afternoon							Rain, wind, and electri- cal	Heavy thunderstorms over widely scattered areas, notably at Bowling Green and in Cleveland area.
OHIO Cincinnati area, Hamilton County	13	Afternoon			0	0			Electrical and funnel aloft	\$75,000 damage to school by lightning fire. Pilot reported funnel aloft.
OHIO Central and west-central portions	13	Afternoon							Wind, rain, and electri- cal	Thunderstorms over large part of central and west-central; greatest development in comparatively narrow path from just west and north of Dayton to Columbus. At University Farm in northwestern Columbus, 0.95 inches of rain fell in 15 minutes and total for storm 3.05 inches. Winds gusty and locally strong. Minor localized damage in Clintonville section where store windows "popped out" and roofs damaged, coming shortly after heavy rains of 8th through 10th and attaining maximum intensity in some area, flood conditions further aggravated in many places.
WYOMING Upton, Weston County	13	Afternoon					3	4	Hail	

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
WYOMING Kaycee, Johnson County	13	Afternoon					1	4	Hail	
NEW JERSEY Burlington and Mercer Counties	13	4:20 p.m.	1	100	0	1	5		Tornado	Funnel cloud observed as it moved eastward at about 50 m.p.h., loaded with debris. 1 person injured, not seriously, when trapped in collapsed shed. 12 homes, a greenhouse, a lumberyard, a gas station, and 2 small factories suffered moderate to severe damage. Trees in wooded area in path of storm shorn cleanly just a few feet above ground. Several sheds and small buildings demolished. Bordentown Township in Burlington County, and Groveville in Mercer County were damaged communities.
ILLINOIS Brocton, Edgar County	13	4:30 p.m.	1	Narrow	0	0	4		Tornado	Damaged 1 farmstead; moved southeastward.
MISSOURI Independence (6 miles east- northeast of), Jackson County	13	5:05 p.m.			0	0	1	1	Funnel aloft	
MISSOURI Boone County	13	5:15- 10:30 p.m.			0	0	3	3	Rain and funnel aloft	Heavy rain at Columbia, McBaine, and Centralia. Unconfirmed funnel reported 8 miles east of Columbia.
NEW JERSEY Ocean County (northeastern portion)	13	5:45 p.m.	1/2	150	0	0	3		Tornado	5 funnel clouds observed moving eastward over Barnegat Bay. These cone-shaped clouds joined as they hit narrow strip of land on which village of Mantoloking located. Damage to numerous buildings, due to smashed windows, damaged roofs, and knocked down television antennas. Several garages damaged, as well as Borough Hall.
MISSOURI Concordia, Lafayette County	13	5:50 p.m.	4	440	0	0	5	3	Tornado, hail, and funnels aloft	Several funnels sighted, many of which remained aloft. Funnel sighted west of town by Highway Patrol, moved through town. Most of roof of large church blown off. House blown off foundations. Much minor damage to buildings. Hail 2 to 3 inches in diameter. Storm moved southeastward.
MISSOURI Lafayette, and Saline Counties	13	6-6:30 p.m.					5	5	Hail, wind, and rain	Area from Concordia to Sweet Springs hit by hail, wind, and heavy rain. Much crop damage reported. Many roofs, windows, and trees damaged by hail.
MISSOURI Wentzville (5 miles south of), St. Charles County	13	7 p.m.			0	0			Tornado	Funnel touched ground briefly.
VIRGINIA Alexandria area	13	7-8 p.m.					3		Wind and electrical	Winds estimated at 60 m.p.h., or more damaged trees and downed utility lines. Woods fire started near Alexandria. Storm moved northwestward.
INDIANA Dearborn County	13	7:10 p.m.					5		Wind	Wind blew down trees which fell on houses, utility lines, and cars.
TEXAS Amarillo (48 miles south- east of), Arm- strong County	13	8:20 p.m.	1/2	50	0	0	3		Tornado	Destroyed barn, tore up porch and broke windows; moved southwestward.
KENTUCKY Northern portion	13	P.m.				1	5	4	Wind and electrical	Damage to barns, trees, utility poles, and chimneys by thunderstorm winds estimated to reach 75 m.p.h., in gusts and 2 homes struck by lightning with minor damage in Boone and Kenton Counties. Heavy thunderstorm downed many trees and utility wires, with major roads blocked for several hours in Bourbon County. 6 buildings struck by lightning in Louisville. Damage caused by wind and lightning principally to signs and powerlines, with 1 lineman burned due to contact with downed electric wire at Maysville.
RHODE ISLAND Central portion	13	Late p.m.					4	1	Electrical and rain	Heavy rainfall accompanied by lightning damage hit southern suburbs of Providence. Between 8 and 9 p.m., total of 1.60 inches recorded at Providence, heaviest hourly fall since hurricane Diane, in 1955. Lightning-caused fire destroyed summer home in Coventry, but loss estimate not available. Police and fire alarm systems knocked out by lightning in Warwick and Coventry. Many streets flooded, stalling automobiles, and washout in West Warwick partially undermined garage.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
COLORADO Morgan, Wash- ington, and Yuma Counties	13	Evening	30	*7-10			4	5	Hail, wind, and rain	Area along the South Platte through Wiggins, Ft. Morgan, and Brush heavily hailed. Heavy rain and wind with hail damaging buildings, crops, and trees. Rain and hail also fell at Otis and Yuma. At Yuma, windows broken and crops destroyed. Hailstones size of golf balls reported at Brush. Storm moved eastward.
WEST VIRGINIA Wood and Pleasant Counties	13	Evening						1	Electrical, wind, and rain	Many trees, limbs, and wires blown down by high winds, resulting in disruption of communications and power services and temporary blocking of roads. Minor landslides caused by heavy rains. Storm moved eastward.
WEST VIRGINIA Lewis and Taylor Counties	13	Evening					5	4	Electrical, wind, rain, and hail	Numerous trees uprooted or damaged, many roofs and other parts of buildings damaged by high winds and flying debris, communications and powerlines blown down, field and garden crops damaged by hail. Storm moved eastward.
INDIANA Stinesville, Monroe County	13				0	0	4	1	Tornado	Trees and powerlines knocked down.
INDIANA Ellettsville, Monroe County	13				0	0	4	1	Tornado	Trees and powerlines knocked down.
INDIANA Farmland (6-1/2 miles northeast of), Randolph County	13				1		1	1	Rain	Boy drowned after falling in ditch filled with water.
INDIANA Smartsburg, Montgomery County	13				0	0	5	1	Tornado	Demolished section of factory and damaged 5 houses; moved eastward.
	13									Minor storms also reported near Anthony, Ind.; and at Cairo, California, and Salisbury, Mo.
MISSOURI Sedalia, Pettis County	13-14						4	3	Rain	4.36 inches of rain. Considerable local flooding.
MISSOURI Neosho, Newton County	14	3:45- 5 a.m.					4	3	Rain, hail, and wind	Heavy rain, hail as big as golf balls, and strong winds. Local flooding on small streams. Many wires and trees downed. Roofs and windows damaged.
MISSOURI Lee's Summit, Jackson County	14	9:45 a.m.				1			Electrical	Man stunned when hit by lightning.
KANSAS Stafford County	14	5-5:30 p.m.	12	*2			3	4	Hail and wind	Hailstorm with largest stones about 2 inches in diameter damaged area from 4 miles southwest of Hudson to about 10 miles northeast of town. Hudson was at south edge of storm damage path. Storm moved northeastward. Crop damage by hail, property damage by wind.
ILLINOIS Villa Ridge, Pulaski County	14	6 p.m.					4	4	Wind	Damage to trees and buildings at about 6 farmsteads. Peach orchard heavily damaged.
NORTH CAROLINA Guilford County	14	6:30 p.m.					3		Wind	Aircraft turned over at Greensboro-High Point Airport, and damaged. Scattered damage to buildings. Weather Bureau Airport Station reported gusts to 69 m.p.h.
KANSAS Miami County	14	8-8:20 p.m.	8	30	0	0	2	1	Tornado	Small tornado moving eastward hit ground several times across western part of County, but caused only minor damage at one place, 12 miles northwest of Paola.
KANSAS Greenwood and Woodson Counties	14	9-9:45 p.m.	20	* 1/4-4	0	0	4	4	Tornado, wind, hail, and funnels aloft	Tornado moving southeastward sighted just before it hit ground 6 miles east of Hamilton, where buildings on 2 farms damaged. Severe winds attended passage of tornado across Woodson County. 2 funnel clouds observed as tornado lifted north of Yates Center. Damages to crops \$20,000 by hail, \$20,000 by wind; to property \$15,000 by tornado, \$35,000 by wind.
	14									Minor storms also reported in Marion and Chase Counties, at Olpe and Ottawa, Kans.; at Independence and Madison, Mo.; and in Wayne County, N. C.
CONNECTICUT & RHODE ISLAND	14-16						4		Wind	Intense low pressure center moving up the St. Lawrence Valley on 14th and stalling through 16th produced extended period of unseasonably high winds. Gusts to 45 m.p.h., and average

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
CONNECTICUT & RHODE ISLAND (Cont'd.)										daily speeds of 15 to 20 m.p.h., caused extensive damage in northwest and north-central Connecticut and scattered light damage elsewhere. Thousands of trees blown down or broken in Norfolk, Connecticut area and in Farmington River Valley to east. Widespread power failures resulted from wire breakage in affected area. Cloth on tobacco shade tents torn in many fields in Hartford area, requiring prompt repair or replacement for crop protection.
NEW ENGLAND Central and northern portions	14-16				1	1	5	4	Wind	Damaging winds on 3 days, with worst early on 14th. Damage widespread, but minor in most localities. Many limbs and some trees downed, breaking utility lines to thousands of homes. Trees crushed several automobiles and damaged buildings. Western Maine may have borne brunt of storm, especially Oxford County. Communities completely isolated by loss of power and phone service, and roads blocked by trees. At Brewer, Maine, motorist injured when elm destroyed his automobile. Hundreds of boats and many docks at resort lakes damaged. 1 man drowned when wind swamped his boat on Mooselookmeguntic Lake, near Oquossoc, Maine. 2 seaplanes damaged. Church steeple toppled at Andover, Maine. Some fishing and pleasure craft damaged in coastal waters. Considerable wind damage to shade and fruit tree foliage throughout area, in addition to loss of branches. Crops and gardens suffered some wind damage.
KANSAS Morris County	15	Early a.m.			0	0			Wind, or tornado (suspected)	Damages at a drive-in-theatre, and to farm buildings east of Council Grove showed some indication of tornadic action. No funnel sighted, however.
TENNESSEE Henderson, Chester County	15	1 p.m.						1	Wind	Many TV antennas, utility poles, and trees twisted or broken; roof damage to cotton gin and several outbuildings.
NORTH CAROLINA Charlotte, Mecklenburg County	15	1:30 p.m.					4		Wind	Roof blown off \$6 million coliseum.
OKLAHOMA Muskogee, Muskogee County	15	2:30 p.m.	10	880					Wind	Straight-line winds caused minor damage to TV aerials and uprooted trees. Winds estimated at 60 to 70 m.p.h. Storm moved northeastward.
MONTANA Denton-Coffee Creek vicinity, Fergus County	15	3 p.m.	20	800			1		Hail	Hailstones up to 1 inch. Crop damage up to 80 percent. Storm moved southeastward.
MONTANA Moccasin (6 miles north of), to Moore, Judith Basin County	15	3 p.m.	15	400			1		Hail	Hailstones up to 3/4 inch. Crop damage varied from 50 to 80 percent. Storm moved southeastward.
OKLAHOMA Bethel and Tecumseh, Pottawatomie County	15	3 p.m.	15	1500					Electrical and wind	Strong winds with gusts occasionally to 70 m.p.h., caused minor damage to farmsteads and powerlines. Storm moved eastward.
NEBRASKA Hemingford (near), Box Butte County	15	Afternoon	Short	Narrow	0	0	1	2	Tornadoes	Observed over open fields.
NORTH CAROLINA Lenoir County	15	Afternoon				1	4		Wind	Man hurt when building blown over. Roof blown off new school, many other buildings damaged.
NORTH CAROLINA East of mountains	15	Afternoon					4		Wind	Widespread light wind damage in addition to items listed above.
NORTH DAKOTA Southeastern portion	15	Afternoon	120		0	0	4	5	Hail	Storm moved eastward over wide area.
OKLAHOMA Cushing, Payne County	15	4 p.m.	3	1000			5		Hail	Heavy hail ranging from 1 inch to occasionally 2-1/2 inches in diameter caused heavy damage to roofs and neon signs.
NEBRASKA Northern Platte Valley from Wyoming border to Hitchcock County	15	4 p.m.- midnight	180	*2 to 10	0	0	3	6	Hail, wind, and tornado	Small tornado 1 mile north of Trenton. Hailstones 1 inch or more in diameter. Storm moved southeastward.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Lineville (5 miles west of), Mercer County	15	4:30 p.m.					4	2	Tornado	Horse lifted into air and deposited unhurt. Several farm buildings demolished.
OKLAHOMA Creek and Tulsa Counties	15	4:30 p.m.	20	1000			6	5	Hail and wind	Severe thunderstorm moved across Sapulpa and southern part of Tulsa. Heavy hail ranging from 1/2 to 2 inches in diameter accompanied by winds estimated at 60 m.p.h. Storm moved northeastward.
MONTANA Musselshell County (south- western corner)	15	5 p.m.					1	4	Hail	Hailstones up to 1-1/4 inches. Storm moved eastward.
OKLAHOMA El Reno, Canadian County	15	5 p.m.					4		Electrical	Lightning set fire to 2 barns. Barns and con- tents totally destroyed.
WYOMING Casper (near), Natrona County	15	6 p.m.			1		1	1	Electrical	
ALABAMA Mobile (50 miles south of), Mobile County	15	8:25 p.m.			0	0	1	1	Waterspout and funnel aloft	Pilot reported funnel cloud and waterspout.
COLORADO Washington and Yuma Counties	15	8:45 p.m.			0	1	3	4	Tornado (sus- pected) and hail	Tornado-like storm 1 mile east of Yuma de- stroyed barn and feed bunks on farm and levelled TV antennas and power poles. 1 man injured by hail. Hail severe in vicinity of Idalia and Bonny Dam, where golf-ball sized hail piled up 4 inches in depth. Storm moved eastward.
TEXAS Morton and Muleshoe, Cochran and Bailey Counties	15	11:15 p.m.			0	0			Tornado (suspected)	
ARKANSAS Brinkley (5 miles south of), Monroe County	15	P.m.			1				Electrical	Man killed by lightning.
NORTH CAROLINA Cabarrus County	15						4		Wind	Several buildings destroyed or damaged near Concord. 215-pound man reported lifted off ground by force of wind, but not injured.
	15									Minor storms also reported at Scottsboro, Ala.; at Clinton, Mo.; near Tiber, Mont.; in north- western Sheridan County, Nebr.; near Rapid City, S. Dak.; and at Moscow, Tenn.
MISSISSIPPI Schlater, Leflore County	16	11 a.m.			0	0	1	1	Funnel aloft	
NORTH DAKOTA Cass and Richland Counties	16	1:30-2 p.m.			0	0			Funnels aloft	Funnel cloud 25 to 40 miles south of Fargo. United Press correspondent saw 4 funnel clouds in vicinity of Colfax, Walcott, and Mooreton. Went back into cloud without touching ground.
TEXAS Tioga (near), Grayson County	16	2:24 p.m.			0	0	1	1	Funnel aloft and rain	Moved northeastward.
OKLAHOMA Lake Texhoma, Marshall County	16	2:30 p.m.	2	880			4		Wind	Winds in severe thunderstorm caused considerable boat and raft damage. Winds estimated in excess of 60 m.p.h. Storm moved southeastward.
TEXAS Lake Texoma, Sherman County	16	Afternoon	10	*2			4		Wind	Strong wind pushed newly constructed fishing barge onto sandbar where waves pounded it to wreckage. Storm moved southward.
NORTH DAKOTA Fargo (56 miles south-southwest of), Richland County	16	3:33-3:50 p.m.			0	0			Funnels aloft	
COLORADO Arkansas Valley	16	Afternoon -evening					3	4	Hail and rain	Series of thunderstorms with hail and heavy rain caused much damage to crops and property from Colorado Springs southeastward. At Peterson Field, housing units again damaged. Rain heavy at Pueblo and Pinon. Storm moved southeast- ward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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					Killed	Injured	Property (exclusive of crops)	Crops		
NEW MEXICO Quay County (central portion)	16	4:30 p.m.	10	*5			3	5	Hail	Considerable damage to winter wheat. Storm moved east-southeastward.
IOWA Clay to Madi- son and Warren Counties	16	5-7 p.m.	130	*35			1	5	Hail	Damaged crops. Storm moved south-southeastward.
TEXAS Hereford (10 miles south- west of), Deaf Smith County	16	5:30-6 p.m.	3	50	0	0	3		Tornado and hail	Gin and 14 houses unroofed. Glass blown from houses; trailers damaged.
TEXAS Study Butte, Brewster County	16	6:45 p.m.		100	0	0	3		Tornado	Most of house roof torn off, moved 100 yards; 2 bedrooms with contents ruined. Tornado moved southwestward.
TEXAS Waco, McLennan County	16	7:50- 8:55 p.m.			0	0	1	1	Funnel aloft	Moved from northwest of Waco to northeast of Waco.
NEBRASKA Chase to Hitchcock Counties	16	8-9 p.m.	25	*3			1	4	Hail	Hailstones small, 1/4 to 1/2 inch in diameter. Storm moved southeastward.
	16									Minor storms also reported in northern Quay and southern Union Counties, N. Mex.
TEXAS Orange County	17	11:45 a.m.			0	0	1	1	Funnel aloft	Moved eastward across river from Beaumont.
KANSAS Hudson area, Stafford County	17	1 p.m.	5	*3				4	Hail and wind	Hailstorm lasted but a few minutes; some stones about 1 inch in diameter, but most were about marble size, very numerous and driven by quite a wind. Storm moved northeastward.
SOUTH DAKOTA Kennebec, Lyman County	17	2 p.m.	130					4	Hail	North of town, along Missouri; hail size of golf balls. Storm moved southeastward.
NEW MEXICO Carrizozo (west of), Lincoln County	17	2:10 p.m.			0	0	1	1	Funnel aloft	Funnel reported over open country, unable to confirm.
SOUTH DAKOTA Chamberlain, Brule County	17	Afternoon	130					4	Hail	Storm moved southeastward.
SOUTH DAKOTA Eagle	17	Afternoon	130	*5				4	Hail	Storm moved southeastward.
SOUTH DAKOTA Academy, Charles Mix County	17	Afternoon	130		0	0		4	Hail, wind, and funnels aloft	3 funnels sighted over Bijou Hills. Storm moved southeastward.
SOUTH DAKOTA Platte, Charles Mix County	17	Afternoon	130		0	0		4	Hail, wind, and funnel aloft	Funnel sighted northwest of town. Storm moved southeastward.
SOUTH DAKOTA Lake Andes, Charles Mix County	17	Afternoon	130	*1-1/2				4	Hail and wind	Storm moved southeastward.
SOUTH DAKOTA Tyndall, Bon Homme County	17	Afternoon	130		0	0		4	Hail and funnels aloft	2 funnels sighted southwest of town. Storm moved southeastward.
SOUTH DAKOTA Britton area, Marshall County	17	Afternoon		*2-3	0	0		4	Hail and funnel aloft	7 miles southeast of town.
NEW YORK East-central portion	17	Late afternoon						2	Wind, electri- cal, rain, and hail	Thunderstorms, some with strong winds, caused usual tree limbs blown down, causing power and phone failures from Utica eastward to Saratoga and Albany area.
TEXAS Batesville (4 miles north of), Zavala County	17	5:14 p.m.			0	0	1	1	Funnel aloft	
NEBRASKA Pierce County	17	6-6:37 p.m.	20	1-2			2	5	Hail	Storm moved southeastward from 4 miles north-northwest of Plainview to just north of Pierce. Hailstones 3/4 to 1 inch in diameter.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

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TEXAS Fort Worth (north-north- west of), Tarrant County	17	7:54- 8:10 p.m.			0	0	1	1	Funnel aloft	Cloud very high; moved slowly north-northwest- ward 3 miles north-northwest of Amon Carter Field.
KANSAS Sherman County	17	Near mid- night	20	*2				5	Hail	Damage mainly to crops over southwest part of County. Losses estimated at 20 to 50 percent of crops. Storm moved southeastward.
MINNESOTA Southwestern portion	17								Hail	Crop damage reported in Chippewa, Murray, Nobles, Redwood, and Rock Counties.
NORTH DAKOTA Eastern portion	17				0	0			Funnels aloft	Numerous funnel clouds reported from Wells and Ramsey Counties eastward to Cass County.
SOUTH DAKOTA Faulkton, Faulk County	17				0	0		3	Hail and funnel aloft	
	17									Minor storms also reported near Hugo and Limon, Colo.; at Point Isabel, Ind.; at Slater, Mo.; and at Geddes, Hayti, and Perkins, S. Dak.
TEXAS San Antonio (southeast of), Bexar County	18	11 a.m.			0	0	1	1	Funnel aloft	
MONTANA Nashua-Glasgow area, Valley County	18	1:30 p.m.			0	0	2	1	Tornado and funnels aloft	3 funnel clouds 5 miles south observed by personnel of Glasgow Air Force Base. Some damage to granaries in area. 1 funnel report- ed touched ground.
TEXAS Timpson (near), Shelby County	18	1:33 p.m.			0	0	1	1	Funnel aloft	
NEBRASKA Box Butte and Sheridan Counties	18	2:30- 3:15 p.m.	30	10	0	0	4	6	Hail and tornado	Hailstones small, 1/4 to 1/2 inch in diameter. Small tornado touched ground in open. Ground covered 2-1/2 inches in center of storm. Storm moved southeastward.
NEBRASKA Sioux County	18	Early afternoon	Sev- eral				2	3	Hail	Hailstones up to 3 inches in diameter, greatest depth on ground 5 inches.
MONTANA Columbus, Stillwater County	18	3 p.m.	20	*4			4	4	Hail	Hail up to size of golf balls. Storm moved southeastward.
MONTANA Joliet to Belfry, Carbon County	18	3 p.m.	30	*3-5			4	5	Hail	Hail reported up to 4 inches in diameter. Prop- erty damage includes \$5,000 livestock loss. Storm moved south-southeastward.
NEBRASKA Kimball County	18	3 p.m.	14	*2			3	5	Hail	Snowplow required to clear highway. Hailstones 1 to 3 inches in diameter. Storm moved south- eastward from Kimball to 9 miles south of Dix into Colorado.
COLORADO Sterling, Logan County	18	3:25 p.m.			0	0	1	1	Funnel aloft	Ground Observer Corps reported tornado cloud southeast of Sterling.
COLORADO Pueblo County	18	Afternoon						3	Hail	Hailstones 1-1/2 inches in diameter fell north- east of Pueblo at 1 p.m. Marble-sized hail flattened crops in area 20 to 40 miles north of Boone earlier in the afternoon.
NEBRASKA Lincoln to Furnas Counties	18	Afternoon	65	*Sev- eral			2		Hail	Considerable crop damage. Storm moved south- eastward.
TEXAS Hereford- Summerfield area, Deaf Smith County	18	Afternoon			0	0	3	5	Hail	Wheat and potato crops damaged about 50 per- cent over about 4,000 acres. Some farm build- ings damaged.
VIRGINIA Fredericksburg (5 miles south of), Spottsylvania County	18	5-5:30 p.m.					3	2	Hail and wind	8 inches of hail measured at Four Mile Fork area just south of Fredericksburg. Gardens damaged, windows and automobile windshields broken, and wind damaged trees and a few small buildings in area. Storm moved north- eastward.
NEBRASKA Dundy County (south-central portion)	18	5:30 p.m.			0	0	1	1	Funnel aloft	

See footnotes at end of table

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JUNE 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
NEBRASKA Ogallala (10 miles north of), Keith County	18	5:45 p.m.			0	0	3	1	Wind or tor- nado (sus- pected)	Probably tornado. Several small farm buildings demolished.
KANSAS Sherman County (northeastern portion)	18	6 p.m.	10	* 1-1/2				5	Hail and wind	Losses varied from complete destruction of crops to about 10 percent over hailed area. Stones mostly pea size, but driven by high wind. Storm moved southeastward.
KANSAS Norton County	18	8:30- 9:30 p.m.	20	*3	0	0	4	5	Hail, wind, and funnel aloft	Hail-damaged strips extended from Nebraska line to 4 miles south of Dellvale. Most hailstones 1/4 to 1/2 inch in diameter with some as large as walnuts. Hail covered ground to depth of 3 inches in some areas. Crop losses ranged from 25 to 100 percent. Stones 1/2 inch in diameter found 12 hours after storm. Severe winds also blew crops down and caused some building damage. Funnel cloud seen at about 9 p.m., southwest of Norton near Lenora. Storm moved south-southeastward.
VIRGINIA Richmond (55 miles south- west of), Lunenburg County	18	10:15 p.m.			0	0			Tornado (sus- pected)	North Carolina State Police reported tornado (yet unconfirmed from Virginia sources); moved southwestward.
MARYLAND Berlin, Worcester County	18								Electrical	Lightning hit a power pole and caused disruption of electricity in northern portion of the city.
	18									Minor storms also reported near Fleming, at Haxtun, Longmont, and Sterling, Colo.; in east-central Dawes County, Nebr.; and at Palmyra, Va.
CALIFORNIA	18-19	7 p.m.					3		Electrical hail, and rain	Upper Low over north caused scattered thunder- storms on 17th to 19th, unusually severe thunderstorms in Fort Bragg coastal area where power systems, 6 private homes, and Union Lumber Company powerhouse struck by light- ning. Several thousand dollars damage. Storm described by older residents as most severe of memory. Mothball-sized hail in Squaw Valley. 24 lightning-strike fires in Klamath National Forest, Siskiyou County; communication and power interrupted. At Upper Lake Ranger Station, 5 lightning fires on 18th and 8 on 19th.
KANSAS Cheyenne County	19	1 a.m.	24	*10				5	Hail	Hail caused much crop damage from 3 to 13 miles north of St. Francis southeastward to near Bird City. Roofs, windows, and buildings also damaged.
IDAHO Preston (2 miles north- west of), Franklin County	19	3-3:30 p.m.	2	880			1	4	Wind, rain, hail, and electrical	Grain, green peas, green beans, corn, sugar beets, and alfalfa badly damaged. Hailstones 1/2 to 1 inch in diameter covered ground to depth of 4 inches. Storm moved northeastward.
OREGON Central and southeastern portions	19	Afternoon -evening					4	3	Electrical	Lightning strikes started a number of small forest fires, which brought under control with little damage, and some range land fires, which burned over considerable area but general- ly only grass or bush land.
OKLAHOMA Seiling, Dewey County	19	3:30 p.m.	1-1/2	30	0	0	4		Tornado	Tornado developed in severe thunderstorm on west side of heavy rain, hail, and narrow band of wind estimated at 75 m.p.h. Tornado moved southeastward.
MINNESOTA Redwood Falls (near), Red- wood County	19	4 p.m.			0	0	1	1	Tornado	Funnel cloud moving southeastward touched ground briefly. No damage reported.
MISSISSIPPI Hollandale (near), Wash- ington County	19	5:15 p.m.							Hail	Hailstones reported as large as 1 to 1-1/2 inches in diameter.
KANSAS Finney and Haskell Counties	19	8:30-10 p.m.	15	*2				5	Hail	Crops along southern Finney County and northern Haskell County destroyed and damaged. Hail- stones averaged about 1 inch in diameter, with a few up to 3 inches in diameter. Storm moved southeastward.

See footnotes at end of table

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Stratford (7 miles north of), Sherman County	19	11 p.m.			0	0			Tornado (suspected)	
KANSAS Kearney and Haskell Counties	19	11:30 p.m. -midnight	55	*4-8			5	6	Hail	Damage began in northwestern Kearny County and continued with varying degrees to southeastern Haskell County. Hailstones ranged in size from peas to ping-pong balls. Some localities had hail 3 inches deep on ground. Roofs, grain bins, and buildings also suffered. Storm moved southeastward.
COLORADO Pritchett area, Baca County	19	Evening						4	Hail	Hailstorm in Pritchett area did heavy damage to wheat.
ALABAMA Pleasant Grove (near), Marshall County	19						1	4	Hail and wind	In Bonds Chapel area, hail damage to crops. Wind blew down "lots of corn", but wind damage probably slight. Size of hailstones not reported.
TEXAS Kerrick, Dallam County	19				0	0	1	1	Funnel aloft	
	19									Minor storms also reported at North Little Rock, Ark.; at Veal community, Ga.; at Neosho, Mo.; near Cornersville, Tenn.; and near Hawk Springs, Wyo.
TEXAS Kerrick, Dallam County	20	12:58 a.m.			0	0			Tornado (suspected)	
TEXAS Hutchinson, Moore, Sher- man, and Hansford Counties	20	12:30-2 a.m.	40	*17	0	1	4	6	Wind, hail and tornadoes	About 40,000 acres of wheat lost or heavily damaged, about 30 bushels per acre, between Stratford and Kerrick. Hail to 3 inches in diameter, wind to 100 m.p.h. Hail damage to roofs, automobiles, neon signs, foliage, and windows at Stratford; destroyed drive-in theater screen at Sunray. Storm moved southeastward. Tornadoes reported 6 miles north of Stratford and 10 miles north of Spearman at 1:20 a.m.
TEXAS Borger (3 miles north of), Hutchin- son County	20	1:15 a.m.	1/4	150	0	2	4		Tornado	At Electric City, damaged roofs of 5 buildings, damaged 3 trailer homes and demolished another; occupants hospitalized. Stayed on ground about 1 minute; moved south-southeastward.
TEXAS Borger area, Hutchinson County	20	1:15- 1:30 a.m.	20	*10			4		Hail, wind, and rain	Winds 60 to 65 m.p.h., large hail damaged power-line poles, plate and window glass, roofs, and automobiles. Outbuildings overturned. Storm moved southeastward.
TEXAS Lefors (5 miles south- east of), Gray County	20	2:44 a.m.			0	0	1	1	Tornado	On ground 5 minutes, returned to cloud and dissipated. Over open country, no damage.
OKLAHOMA Norman, Cleve- land County	20	5 a.m.							Wind	2 aircraft demolished by straight-line winds with gusts estimated at 75 m.p.h., at Westheimer Airport. Strong winds on west side of heavy rain area that was moving southward.
OKLAHOMA Ardmore, Carter County	20	6:23 a.m.							Funnel aloft rain, and wind	No evidence of funnel touching ground. Occurred in area of heavy rain with northerly winds estimated at 50 m.p.h.
TEXAS Gainesville (5 miles west of), Cooke County	20	7:30 a.m.	1/4	50	0	0	1	1	Tornado	Small funnel hit in open field.
TEXAS Royse City (4 miles south- east of), Rockwall County	20	9 a.m.	1/4	25	0	0	1	1	Tornado	In open field.
TEXAS Garland (3 to 5 miles south of), Dallas County	20	9:08 a.m.			0	0	1	1	Funnel aloft	Moved southeastward.
TEXAS Terrell (north of), Kaufman County	20	9:21 a.m.			0	0	1	1	Funnel aloft	Moved southeastward.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Seagoville (north of), Dallas County	20	9:30 a.m.			0	0	1	1	Funnel aloft	Moved southeastward.
TEXAS Kemp (south of), Kauf- man County	20	9:47 a.m.			0	0	1	1	Funnel aloft	Moved southeastward.
KANSAS Meade County	20	12:30- 12:50 p.m.	45	*10	0	2	4	5	Hail, wind, and tornado	Hail damage path extended from northwestern part of county to southeastern corner, passing just east of Plains. Stones golf-ball size and blown by high winds into drifts 1-1/2 feet deep. Tornado followed path about 10 miles long and 30 yards wide northeast of Plains. Loud roar heard. A number of farm buildings demolished. Wheat straws collecting on utility wires caused breaking of wires and toppling of poles. House trailer in which 7 persons were sleeping turned over, with injury to 2 of them. Storm moved southeastward.
MICHIGAN Southeastern portion	20	4 p.m.					°3		Rain and electrical	Local heavy rains and flooding; scattered lightning damage.
INDIANA Salem, Wash- ington County	20	5 p.m.			0	0	1	1	Funnel aloft	
KANSAS Whitewater (northeast of), Butler County	20	7:15 p.m.			0	0	1	1	Funnel aloft	Observed suspended from main cloud body. It lowered to near ground, but did not touch; moved southeastward.
OHIO Amherst and Elyria, Lorain County	20	8 p.m.	5	100	0	4	4	2	Tornado, and funnel aloft	Appears to have been mild tornado with path extending from Amherst to Elyria. Near Am- herst, "revival-meeting" tent blown away and 4 women injured. In Elyria, roof lifted from Ridge Tool Company building and 600 windows broken; also water tower on Perry Fay water tower taken off. Much damage to signs, trees, and windows. Storm moved eastward. A witness reported seeing tornado funnel skim- ming rooftops at 8:01 p.m., in Elyria. Heard a "zoom, sounding like muffled explosion as roof blown off. Funnel cloud described as like a "mushroom cloud." 500 pound concrete slab lifted from roof and dropped. Second- floor windows of house blown outward.
TEXAS Amarillo (55 miles north- west of), Moore County	20	8:05 p.m.			0	0	1	1	Funnels aloft	3 funnels reported.
TEXAS Hockley, Lamb, Castro, and Swisher Counties	20	9:45 p.m.			0	0	1	1	Funnel aloft	Observed from Anton northward to Hart and east- ward to Tulia.
TEXAS Moore County	20	Near mid- night			0	0	1	1	Funnel aloft	Observed west of Etter and north of Dumas.
TEXAS Lubbock (north of), Lubbock County	20	Near mid- night			0	0	1	1	Funnel aloft	
	20									Minor storms in South Bond community, Ark.; near Aguilar and Walsenburg, Colo.; at Rich- mond, Mo.; at Roseburg, near Bend, and in Umpqua National Forest, Oreg.; and at Sulphur Springs, Tex.
OKLAHOMA Gage, Ellis County	21	1:15 a.m.	1/2	60	0	0	5		Tornado	Tornado struck freight train of 182 cars. 17 cars derailed and 180 feet of track torn out. Tornado moved southeastward.
TEXAS Anton (near), Hockley County	21	1:30 a.m.			0	0	1	1	Funnels aloft	2 funnels reported.
TEXAS Port Arthur and Orange areas, Jeffer- son and Orange Counties	21	10:30 a.m.			0	0	1	1	Funnel aloft	Moved northeastward; visible for about 5 minutes.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TENNESSEE Forked Deer community, Haywood County	21	A.m.							Wind and hail	Severe hail-and windstorm resulted in several trees downed, some damage to buildings, and considerable damage to crops.
FLORIDA Punta Gorda (15 miles west of), Charlotte County	21	1:05 p.m.			0	0			Funnel aloft	
TEXAS Orange (15 miles north- west of), Orange County	21	2:25 p.m.			0	0	1	1	Funnel aloft	Visible for about 5 minutes.
TEXAS Brownwood (10 miles north- east of), Brown County	21	3 p.m.	1/2	100	0	0	2		Tornado	Damaged garage, window, TV antennas, henhouse, and trees. Tornado moved northeastward.
TEXAS Owens commu- nity, Brown County	21	3-3:30 p.m.	1/4	100	0	0	2		Tornado	Damaged a few outbuildings and trees. Tornado moved southeastward.
TEXAS Goldthwaite, Mills County	21	3:30 p.m.	2	200	0	1	4		Wind and electrical	Small outbuildings destroyed, antennas downed, nursery trees damaged, windows broken, and roofs damaged. Lightning caused fire which heavily damaged interior of house and furnishings. 2 other homes struck by lightning. Storm moved southeastward.
UTAH Logan area, Cache County	21	3:30- 3:45 p.m.	6	1760				4	Hail	Hailstones up to 1/2 inch in diameter damaged gardens, fruits, and flowers. Storm moved eastward.
MISSISSIPPI Biloxi (5 miles south- southwest of), Harrison County	21	3:41 p.m.			0	0	1	1	Funnel aloft or waterspout	Could have been waterspout over Mississippi Sound.
KENTUCKY	21	4:55 p.m.			0	0			Funnel aloft	Funnel cloud reported by State Police 35 miles northeast of Frankfort, apparently did not reach ground.
NEW MEXICO Artesia (8 miles east of), Eddy County	21	5:33 p.m.			0	0	1	1	Funnel aloft	Funnel reported over open country, unable to confirm.
TEXAS Pecos area, Reeves County	21	7:30 p.m.	18		0	0	5	4	Wind, rain, and hail	To 50-m.p.h., gusts destroyed newly constructed agricultural experiment building at Balmorhea; destroyed 50 to 100 percent of experimental crops. Drive-in theater screen blown down onto 2 cars; several phone poles and TV antennas blown down, roof partly removed, and trees uprooted. Heavy rain and scattered hail did some damage to cotton, melons, and alfalfa. Storm moved northeastward.
TEXAS Pecos (15 miles south- west of), Reeves County	21	7:48 p.m.			0	0			Tornado (suspected)	Touched ground; moved northeastward.
TEXAS Anton (near), Hockley County	21	9:45 p.m.			0	0	1	1	Funnel aloft	
TEXAS Waelder, Gonzales County	21	9:45 p.m.			1		4		Electrical	Lightning struck county trucks, implement and supply barn, completely destroyed barn, 4 new trucks, and all other contents. Woman died of heart attack while calling fire department.
NORTH DAKOTA Dunseith and Belcourt, Rolette County	21				0	0	1	1	Tornado	Funnel touched ground, no damage.
NORTH DAKOTA Grand Forks (11 miles south of), Grand Forks County	21				0	0	1	1	Funnel aloft	
TENNESSEE Woodville, Haywood County	21								Wind and hail	Wind demolished large barn, smoke house, chickenhouse, and other outhouses on farm and damaged home and tenant house. Some hail fell, destroying young cotton.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
	21									Minor storms also reported at Texarkana, Ark.; at Jasper, Mo.; and in Baylor area, Mont.
TEXAS Runge (south and west of), Karnes County	22	11:30 a.m.	15	*7				5	Wind and rain	80-m.p.h., wind and heavy rain badly damaged or destroyed thousands of acres of corn and maize. Trees uprooted. Storm moved southeastward.
KANSAS Doniphan County	22	11:40- 11:43 a.m.	1/2	50	0	0	3		Tornado	Funnel observed moving toward Highland from north-west and dropped to about treetop height near west edge of town, taking tops out of many trees, causing roof and utility line damage, windows sucked out of homes and business buildings. Tornado dissipated at southeast edge of Highland.
WISCONSIN Lake Wissota (near Chippewa Falls), Chippewa County	22	1:30 p.m.	1/4	25	0	0	1	3	Tornado and hail	Funnel touched ground briefly. Crop damage due to 2 inches of hail. Storm moved eastward.
KANSAS Wyandotte County	22	1:40- 1:55 p.m.	**50	25	0	0			Tornado	Funnel cloud first observed about 2,500 feet above Mancia, gradually lowering as it traveled eastward. It came near enough to ground to suck windows from homes, to damage house, lift garage and demolish it, and overturn house trailer. Cloud then lifted and passed into Missouri.
MISSOURI Kansas City, Jackson County	22	1:40- 2:35 p.m.			0	0	1	1	Funnel aloft	Funnel moved eastward through middle of city.
TEXAS Guadalupe Pass, Culber- son County	22	2 p.m.			0	0			Tornado (suspected)	Touched ground.
FLORIDA Jacksonville (25 miles northeast of), Duval County	22	2 p.m.			0	0			Waterspout	
TEXAS Anahuac (near), Chambers County	22	Afternoon			0	0	1	1	Funnel aloft	Visible for about 10 minutes.
IOWA Greene, Dallas, and Decatur Counties	22	3-4:30 p.m.	80	400	0	0	3	1	Tornado (suspected)	Damaged farm buildings; moved south-southeastward. Intermittent path.
WISCONSIN St. Croix and Pierce Counties	22	3:25 p.m.	1/4	50	0	0	2	1	Tornado and funnels aloft	Touched ground briefly at Hudson. Funnels reported near same time at River Falls and Baldwin. Storm moved eastward.
GEORGIA Winder (5 miles northeast of), Barrow County	22	3:45 p.m.	1	50	0	0	2	2	Tornado	Small funnel cloud moving southeastward dipped to ground briefly in rural area, causing minor damage to timber, crops, and farm buildings.
OREGON Scattered areas over State	22	Afternoon -evening					5	5	Wind, rain, hail, and electrical	Scattered thunderstorms accompanied by high winds in Baker area and by hail in Medford area. Caused a number of power service interruptions over State, blew down a number of trees, and near Medford hail damaged some pears. Damage by hail, \$200,000; by wind, \$30,000; by lightning, \$10,000; by rain, \$60,000.
MINNESOTA East-central portion	22	4 p.m.			0	0	1	1	Funnels aloft	Several funnel clouds, not touching ground, reported.
TEXAS Houston (24 miles north- east of), Harris County	22	5:45 p.m.			0	0	1	1	Funnel aloft	
TEXAS Sheldon (12 miles north of), Harris County	22	6:10 p.m.			0	0	1	1	Funnel aloft	Moved southeastward.
TEXAS Vidor, Orange County	22	6:40 p.m.			0	0	1	1	Funnels aloft	2 funnels reported.
TEXAS Fairbanks and Satsuma areas, Harris County	22	6:50 p.m.			0	0	1	1	Funnels aloft	2 funnels reported.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH CAROLINA Moncks Corner, Berkeley County	22	7:07 p.m.							Hail	Damage undetermined. Hail marble size.
MISSOURI Salisbury, Chariton County	22	7:40- 7:45 p.m.			0	0	1	1	Funnel aloft	No roaring sound. No wind on ground. Sighted moving southeastward.
WISCONSIN Williams Bay, Walworth County	22	7:50 p.m.			0	0	1	1	Funnel aloft	
NEW MEXICO Fort Sumner and vicinity, De Baca County	22	9 p.m.					5		Hail	
MISSOURI Savannah (west of), Andrew County	22				0	0	1	1	Funnel aloft	
	22									Minor storm also reported at Catawba, S. C.
MISSOURI Jackson County	22-23	Night						5	Hail	Heavy damage to crops by hail.
TEXAS Pampa, Gray County	23	7 a.m.	**20	10	0	0	3		Tornado	Touched ground for only a moment, damaged 6-stall metal garage 50 x 30 feet; powerlines cut by flying metal. Tornado moved southwestward.
TEXAS Floydada (7 miles east of), Floyd County	23	10:30-12 a.m.	15	*7				5	Wind and hail	Damaged cotton, milo, wheat and soybeans. Storm moved southeastward and southwestward.
NORTH DAKOTA Traill County northward to Cavalier County	23	12:44 p.m.			0	0	4	5	Funnel aloft, wind, and hail	Mayville Airport manager reported considerable hail and wind damage over wide area.
TEXAS Scurry County	23	1:45- 2:45 p.m.	100	200			4		Wind, hail, and rain	At Snyder, winds to 60 m.p.h., unofficial rain 2 inches in 40 minutes. House blown from foundation, badly damaged, another unroofed; outbuildings blown over, damaged; power poles downed for stretches of several hundred yards; interiors rain damaged. About 10 miles southwest of Snyder at Ira heavy hail and high winds heavily damaged crops.
ILLINOIS Rantoul area, Champaign County	23	2:15- 2:30 p.m.	** 400	30-50	0	0	1	2	Tornado	Tornado touched ground in corn field some 6 miles west-northwest of Rantoul. Observed by pilots and many others. Moved first toward the southwest and then toward southeast.
TEXAS Forsan, Howard County	23	3-4 p.m.	20				4		Wind	Gust unroofed 1 house, blew over 4 oil derricks and 4 garages, destroyed several small outbuildings, and damaged trees. Storm moved southeastward.
KANSAS Harvey and Sedgwick Counties	23	4-4:30 p.m.	12	*2	1	2	2	4	Hail, funnel aloft, and electrical	Thunderstorm broke over northeastern Sedgwick and Harvey Counties at about 4 p.m. Hail 1 inch in diameter damaged crops and roofs near Newton. Funnel cloud sighted near Sedgwick at 4:21 p.m. Man killed and 2 injured by lightning on ramp of Beach Aircraft Company at 4:35 p.m. Storm moved eastward.
IOWA Fremont County	23	4:30 p.m.	20	*2			1	4	Hail	Damaged crops. Storm moved east-southeastward.
MINNESOTA Truman (6 miles south- west of), Mar- tin County	23	4:50 p.m.	6	100	0	0	3	1	Tornado and funnels aloft	1 garage destroyed, other small buildings damaged. Several funnel clouds reported that did not touch ground. Storm moved southeastward.
IDAHO Most of State	23	Late after- noon- evening				2			Wind, rain, and electri- cal	Wind and rain damage to growing crops, cut hay, and powerlines reported from numerous points, ranging from Bonner County through southwest and eastward to Magic Valley and Wood River areas. Winds in excess of 40 m.p.h. reported in all sections. Sharp drop in temperature followed onset of strong winds. 2 persons seriously injured in 5-car accident caused by blowing dust north of Caldwell.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
IOWA Ida and Crawford Counties	23	5-7 p.m.	50	*7			3	5	Hail	Damaged crops and homes. Storm moved southeastward.
MISSOURI Holt County	23	6:15 p.m.			0	0	1	1	Funnel aloft	
MISSOURI Gashland, Clay County	23	8:13 p.m.			0	0	1	1	Funnel aloft	
MINNESOTA Western half	23	P.m.					1		Hail	Hail damage to crops reported from Kittson, Polk, Wilkin, Grant, Traverse, Stevens, Big Stone, Morrison, Stearns, Swift, Lac Qui Parle, Meeker, Jackson, and Faribault Counties. Storm moved southeastward.
MISSOURI East Lynne, Cass County	23				0	0	1	1	Funnel aloft	
TEXAS Big Lake (10 miles north of), Reagan County	23		**75 -100		0	0	1	1	Tornado	Tornado moved southward; blew down trees.
TEXAS Lynn and Garza Counties	23		20	*5				6	Hail, wind, and sand	Heaviest damage in center of this strip from 3 miles north of Gordon to east of Grassland; about 5- to 6,000 acres of cotton badly damaged or destroyed; 14,000 additional acres damaged. Storm moved southward and eastward.
TEXAS Colorado City (near), Mitchell County	23				0	0	1	1	Funnel aloft	
	23									Minor storms also reported at Yemassee, S. C.; at Rosholt, S. Dak.; and at Sterling City, Tex.
WASHINGTON Entire State	23-24	Evening- night					3		Wind, electrical, and dust	Lightning caused minor property damage in west. High wind damaged crops in some localities east of Cascades and produced rather bad duststorms in some localities. Several grass fires started by lightning. Church at Ephrata burned as result of lightning strike.
OKLAHOMA Fairview, Ringwood, and Enid, in Major and Garfield Counties	24	2 a.m.	20	2000	0	0		4	Wind, rain, electrical, and tornadoes	Severe thunderstorms moved across these counties with winds estimated at 60 with gusts to 80 m.p.h., accompanied by heavy rain. Funnels aloft reported west of Enid which touched ground briefly in open field. Powerlines downed and considerable damage done to transformers by lightning strikes. Storm moved southeastward.
SOUTH DAKOTA Sisseton, Roberts County	24	2 p.m.			0	0			Funnel aloft	Southeast of town.
WISCONSIN Forest and Oconto Counties	24	3 p.m.					3	4	Hail	Hail 4 to 8 inches deep in town of Brazeau and Wabeno.
OREGON Scattered areas over State	24	Afternoon					3	3	Wind, electrical, hail, and rain	Combination of winds and lightning caused a number of power and telephone service interruptions. Lightning started a few small fires, brought under control with little damage. Some power company installations burned out by lightning. A limited amount of cut hay damaged in southwest. Damage by wind, \$1,000; by rain, \$5,000; by hail, \$1,000.
MONTANA Malta (20 miles south of), Blaine County	24	3:45 p.m.			0	0	1	1	Funnel aloft	Reported by Great Falls Air Force Base.
PENNSYLVANIA Erie, Crawford, and Mercer Counties	24	Late afternoon					4		Electrical, wind, and rain	Severe electrical storm blamed for fires which completely destroyed 2 homes and started fires in several others. Wheat ready for harvest flattened in fields.
KANSAS Hodgeman, Ford, Kiowa, and Comanche Counties.	24	5-7 p.m.	35		0	0	4	5	Hail, wind, rain, and funnels aloft	Severe thunderstorm conditions over these 4 counties. Hail strips of various widths and lengths reported. Wind damage to quite a number of farm buildings near Bucklin and Mullinville. 4 funnel clouds sighted near Jetmore. Heavy rains caused flash flooding

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS (cont'd.)										over Kiowa and Comanche Counties from 6-7 p.m. Damage estimates were for Hodgeman County only; to property by hail, \$30,000; by wind, \$20,000; crop damage by hail, \$400,000; by rain, \$20,000. Storm moved southeastward.
INDIANA Elkhart, Elk- hart County	24	5:26- 8:14 p.m.			0	0	4	1	Tornado	Funnel cloud first sighted at 5:26 p.m., near Indiana Toll Road and St. Joseph - Elkhart county line. Parent cloud with varying number of funnel clouds tracked eastward by toll road police, entering Ohio at 8:14 p.m. First damage occurred between Granger and county line when tornado observed to dip and destroy fences and trees. Part of barn roof ripped off. Touched ground again about 5:34 p.m., 2-1/2 miles north of Elkhart, blowing down some trees, electric lines, and 2 corn cribs. Funnel next touched ground just west of Indiana Road 13 and south of Indiana Toll Road, lifting roof from cement-block barn and cutting swath in woods. A little farther eastward cottage damaged on Stone Lake.
MICHIGAN Camden (near), Hillsdale County	24	8 p.m.	4	30	0	0	4		Tornado	Several farm buildings smashed, funnel reported earlier in extreme northern Indiana may have been same storm. Tornado moved eastward.
KANSAS Kingman County	24	8 p.m.			0	0	1	1	Funnel aloft	Sighted near Kingman.
OKLAHOMA Harper, Texas, Beaver, Woods, Cimarron, Woodward, and Dewey Counties	24	8-10 p.m.	10	880			5	5	Hail and wind	Scattered severe thunderstorms moved southeastward across these counties accompanied by heavy hail 1/2 to 1-1/2 inches in diameter and winds from 60 to 75 m.p.h. Severe damage reported to roofs and windows in Woodward.
KANSAS Geary County	24	8:10- 8:40 p.m.	15						Hail and electrical	Hail damage reported in Alida-Milford area and south and east of Junction City. Gardens and crops worst hit. 2 houses struck by lightning, but without major damage. Storm moved southeastward.
KANSAS Lyon County	24	9:30 p.m.	2	50	0	0			Tornado and wind	Tornado with long pendant-shaped funnel hit a few farms, damaging buildings and trees 5 to 6 miles northwest of Emporia. Very loud roar heard. Attending strong winds caused some damage in the neighborhood. Storm moved eastward.
MISSOURI Lexington- Wellington area, Lafayette County	24	9:30- 10:30 p.m.			0	0	5	3	Tornado and rain	Hit Wellington at 9:35 p.m. Went on into Mayview area at about 10:30 p.m. Many farm buildings destroyed. Lexington had very heavy rain, 1.50 inches in 30 minutes. Storm moved northeastward.
OKLAHOMA Moscow Flats community, Woodward County	24	10:15 p.m.	1/2	200	0	0			Tornado	Small funnel struck farmstead, destroying some buildings. Tornado associated with line of thunderstorms reported above. Tornado moved southeastward.
MISSOURI Pettis and Henry Counties	24	10:48 p.m.			0	0	1	1	Funnel aloft	Sighted moving east-northeastward northeast of Sedalia. Later reported near Windsor and Lamonte at 11:05 p.m.
KANSAS McPherson, Marion, and Chase Counties	24	11-11:30 p.m.			0	0			Wind, hail, and funnel aloft	Minor wind and hail damage over these counties. Funnel cloud sighted 10 miles northeast of Matfield Green at 11:10 p.m. Storm moved southeastward.
OKLAHOMA Waynoka, Woods County	24	11:45 p.m.	1/2	30	0	0			Tornado	Tornado blew car across road into ditch. Hissing noise which was preceded by hot wind reported. Tornado moved southeastward.
COLORADO Weld, Larimer, and Boulder Counties	24	Night	15	*4			4	6	Hail, snow, and rain	Hail in Greeley, La Salle, Kersey area damaged corn, grain, and truck crops. Snow fell in high mountains and heavy rain fell in Larimer and Boulder Counties.
ARIZONA Casa Grande (4-1/2 miles west of), Pinal County	24				1		1	1	Heat	Man's death probably due to heat prostration.
	24									Minor storm also reported near Yuma, Colo.
KANSAS Marion County	25	2:30 a.m.			0	0	1	1	Funnel aloft	Sighted 3 miles north and 2 west of Hillsboro, moving southward.
OKLAHOMA Cameron, LeFlore County	25	8:30 a.m.	1/2	200	0	1	4		Tornado and rain	Small tornado developed on west side of heavy rain. Due to heavy rain, funnel not visible. Storm moved northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path miles	Width of path yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
FLORIDA Tampa (30 miles south- west of), Hillsborough County	25	10:30 a.m.			0	0			Waterspout	
ARKANSAS Malvern, Hot Spring County	25	12:55 p.m.			0	0			Funnel aloft	Funnel cloud observed over southern section of city for nearly an hour.
MICHIGAN Wyandotte, Wayne County	25	2 p.m.			0	0	1	1	Funnels aloft	3 funnels reported; tornado in Ontario Canada (a few miles to east) occurred a few minutes later.
TEXAS Dallas (30 miles north of), Collin County	25	3:40 p.m.			0	0	1	1	Funnel aloft	
OHIO Kenton area, Hardin County	25	4-5 p.m.							Rain	Torrential rain in heavy thunderstorm. Total of 2.53 inches.
OHIO Cuyahoga, Geauga, and Ashtabula Counties	25	5 p.m.				5	5	1	Wind, rain, electrical	Linesquall thunderstorm crossed Cleveland area. Minor damage, mostly to trees, power- and telephone lines, occurred at scattered points in southwestern and western Cleveland. More extensive damage, estimated at \$100,000, occur- red in eastern suburbs, mainly Cleveland Heights and South Euclid. Most injuries from flying glass and falling trees. Storm continu- ed northeastward, causing scattered damage in Geauga and Ashtabula Counties.
NEW YORK South of Lake Ontario to Oneida and Madison Counties	25	Evening					5	2	Wind, electri- cal, hail, and rain	Severe thundersqualls hit area south of Lake Ontario with usual news accounts of "twisters" and "tornadoes." Centers of damage in Lan- caster, parts of Rochester, Livonia, and Cones Lake. No responsible official will specify that any tornadoes occurred. Damage in Rochester alone estimated well over \$100,000. Other areas of state had thunderstorms and some damage from wind.
	25									Minor storms also reported at Coats, Kans.; at West Plains, Mo.; and at Martin, Tenn.
TEXAS Rockport (near), Aransas County	26	10:12 a.m.			0	0	1	1	Waterspout	
TEXAS Corpus Christi (15 miles southwest of), Nueces County	26	11:24 a.m.			0	0	1	1	Funnel aloft or dust devil	
TEXAS Gregory (near), San Patricio County	26	11:40 a.m.			0	0	1	1	Funnel aloft	
CONNECTICUT Central portion	26	2-12 p.m.					2		Electrical and wind	Storm, accompanied by gusty winds, caused localized damage to trees and powerlines in Hartford and Waterbury areas. Intense rain- fall at about 3 to 4 p.m., during which both cooperative observer at Waterbury and Weather Bureau at Hartford observed approximately 0.75 inch of rain in 20 to 25 minutes. Thun- derstorm moved eastward without further dam- age reported.
PENNSYLVANIA Extreme south- eastern Counties	26	2:30 p.m.					4	1	Electrical, wind, and rain	Lightning fired barn and several other build- ings, destroying barn and contents consisting of machinery, animals, and hay. 60-m.p.h., winds accompanying storm felled numerous trees and powerlines, disrupting electric and tele- phone services for a time. Storm moved east- ward.
MASSACHUSETTS East Long- meadow, Hamp- den County	26	3:50 p.m.	Short	Narrow	0	0	2	1	Tornado	Small tornado snapped off trees and uprooted some, narrowly missing house. Awnings ripped from house. Tornado moved eastward.
MICHIGAN Entire State	26	Afternoon					4		Wind	Most damage occurred near Mackinaw City to exhibits prepared for dedication ceremonies for new Mackinac Straits Bridge. Other minor damages to trees, signs, TV antennas, etc.
OREGON North-central portion	26	Afternoon					3	4	Wind and hail	In western Umatilla County, high winds caused considerable scattered damage in buildings, power installations, and trees. At about

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
OREGON (cont'd.)										same time, hail caused losses in a number of grain fields in Moro, Sherman, Wasco, and Gilliam Counties. Damage by wind, \$4,000; by hail, \$21,000.
TEXAS Corpus Christi (near), Nueces County	26	4:40 p.m.			0	0	1	1	Funnel aloft	
LOUISIANA Cameron Parish	26	5:23 p.m.			0	0	1	1	Funnel aloft	Located in or on uninhabited edge of Lacassine wildlife refuge.
WASHINGTON Wallula Junction, Walla Walla County	26	6 p.m.	1/4	50	0	0	4		Tornado	Small cabinet shop damaged severely. Marine supply building damaged by debris from cabinet shop. 2 boats including 30-foot cruiser damaged. Tractor damaged. Tornado moved north-eastward.
MASSACHUSETTS	26	P.m.					3	3	Rain and wind	Heavy thundershower rains flooded streets and washed out crops and roads in several local areas of State. Overtaxed sewers backed up with minor water damage to several buildings. Wind broke limbs, felling powerlines at Agawam.
WASHINGTON Benton, Walla Walla, and Franklin Counties	26	Evening					5		Wind, hail, and electric- cal	Lightning caused grazing land fire which swept estimated 2,000 acres. Fire loss to approximately 2,000 acres of grain. Grain damage by high wind. Also spotty damage by small hail. Local light damage to buildings, and some trees uprooted.
ARKANSAS Sebastian County	26								Rain	8 houses damaged by flash floods.
MARYLAND St. Martin - Taylorville area, Wor- cester County	26								Rain and wind	Farm crops blown down and several chicken-houses blown over.
	26									Minor storms also reported at Tucson, Ariz.; and near Alexandria and in Renan area, Va.
TEXAS Corpus Christi (southeast of), Nueces County	27	5:05 a.m.			0	0	1	1	Funnel aloft	
IDAHO Donnelly (near), Valley County	27	11:45 a.m. -12:05 p.m.	5	400	0	0	4	3	Tornado and hail	Funnel cloud first observed at upper end of Cascade Lake, moved northeastward across several patches of thick pine timber, twisting off trees 10 to 20 feet above ground and uprooting some. Airplane, 2 trailers, and field crops damaged. Loss of \$400 in livestock reported. Hail accompanied storm.
MONTANA Ft. Harrison, Lewis and Clark County	27	3:30 p.m.			0	0	1	1	Funnel aloft	Sighted moving northeastward.
MONTANA Missoula (east of), Missoula County	27	Afternoon				1	1	1	Wind	Woman injured when wind toppled tree on parked car.
FLORIDA Melbourne (15 miles west of), Brevard County	27	4:30 p.m.			0	0			Tornado	Cloud touched ground over uninhabited area; no damages reported.
MONTANA Fort Benton (south of), Chouteau County	27	4:30 p.m.	6-7	*3			1	4	Hail	Hail up to 3/4 inch. Storm moved southeastward.
MONTANA Great Falls vicinity, Cascade County	27	5:18 p.m.			0	0	4	1	Wind and funnel aloft	Funnel cloud reported by rancher to radio station KFBB. 2 boxcars driven at speeds up to 70 m.p.h., along mainline from Floweree to Tunis. Cars switched to siding to prevent wreck on mainline, were derailed after collision with cars standing on siding. Gusts to 80 m.p.h., at Great Falls. Storm moved northeastward.
FLORIDA Fellsmere (7 miles west of), Indian River County	27	6 p.m.			0	0			Tornado and funnel aloft	2 funnel clouds sighted moving eastward, 1 touched ground in uninhabited area. No damages

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KENTUCKY Scott County	27	6 p.m.			1				Electrical	Boy killed by lightning as he was milking cow.
GEORGIA Washington, Wilkes County	27	7:25 p.m.			0	0	1	1	Funnel aloft and rain	Funnel cloud observed by many persons as it moved over city of Washington. Heavy rains occurred during and after appearance of funnel. Conditions described as strangely cloudy and freakish. Storm moved southwestward.
FLORIDA West Palm Beach (20 miles south- southeast of), Palm Beach County	28	10 a.m.			0	0			Funnels aloft	
ARIZONA Tucson, Pima County	28	Afternoon					4	1	Electrical	Home destroyed by lightning fire.
TEXAS Bridgeport, Wise County	28	4:50 p.m.			0	0	1	1	Tornado	
TEXAS Comanche County	28	6:30 p.m.			0	0	1	1	Tornado	
FLORIDA Tampa, Hills- borough County	28	6:45 p.m.			0	0			Waterspout	Waterspout observed offshore.
MAINE Gorham, Cum- berland County	28	P.m.		5	0	0	1	1	Dust devil	Lifted 300-pound swing 70 feet into air.
	28									Minor storm also reported at Aspen, Colo.
IOWA Osceola County	29	9 a.m.	1/2	50	0	0	3	1	Tornado	Unroofed crib.
MICHIGAN Twin Lakes, Alger County	29	4 p.m.	1/2	10	0	0	3		Tornado	Damage to summer cottages, boats, and trees. Tornado moved eastward.
MONTANA Brockway vicinity, McCone County	29	8 p.m.	35	*15			2	4	Hail	Hail up to 3/4 inch. Storm moved southeastward.
MONTANA Miles City, Custer County	29	8:48 p.m.	30	440			1	4	Hail	Hail up to golf-ball size. Storm moved east-northeastward.
	29									Minor storm also reported near Lambert, Mont.
NORTH DAKOTA Stutsman County	30	1:16-1:24 a.m.					4	5	Hail and wind	In Jamestown, windows broken, and cars damaged by hail. Hail size of golf balls; some reported to measure nearly 8 inches in circumference. Wind and hail in surrounding area also.
NORTH DAKOTA Mountrail County (south- ern part)	30	1:30 a.m.			0	1	4	4	Tornado, wind, and hail	Apparently small twister, hit in a number of places in Mountrail County, demolishing farm buildings and ripping roof off house, breaking windows and many trees. Woman received injuries when struck by swinging door. Storm moved southwestward. Crop damage by hail.
NORTH DAKOTA Bowman and Adams Counties	30	4:30 a.m.					4	5	Hail and wind	Large hailstones damaged cars, crops, etc.
FLORIDA Key West, Monroe County	30	11 a.m.			0	0			Funnels aloft	Clouds observed over ocean moving northwestward.
WISCONSIN Northern portion	30	2 p.m.			0	0	4	4	Wind, rain, hail, electri- cal and fun- nel aloft	Funnel reported 3 miles west of Danbury at 5 p.m. Storm moved east-southeastward.
MONTANA Miles City (14 miles east of), Custer County	30	4 p.m.					4	1	Rain	Flash flooding from heavy rain washed out section of Highway 10. Highway damage \$40,000.
NEBRASKA Red Willow County (south- western portion	30	4:30-6 p.m.	10- 15	1320			1	4	Hail	Stones 1/4 to 1/2 inch diameter.
WISCONSIN Tomahawk (5 miles west of), Lincoln County	30	5:30 p.m.	2	50	0	0	3	1	Tornado	Tornado moved eastward.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Lemmon, Perkins County	30	5:45 p.m.	150				6	6	Hail and wind	Hailstones reported as large as golf balls, with 50 m.p.h., wind. Storm started at Ludlow and ended near Glenham with spotted damage. Most property damage occurred in Lemmon where storm lasted only about 10 minutes. Storm moved eastward.
ARIZONA Tucson, Pima County	30	7 p.m.				5	3	1	Wind and rain	Major part of damage unreported. Storm moved northwestward.
NEBRASKA Frontier, Dawson, and Furnas Counties	30	7-7:20 p.m.			0	1	3	5	Hail and tornado (suspected)	Damage 5 miles southwest of Cambridge apparently caused by tornado. Hailstones up to size of golf balls. Storm moved southeastward.
FLORIDA Bayport (10 miles northwest of), Hernando County	30	8:30 p.m.			0	0			Waterspout	
NEBRASKA Lexington (southwest of), Dawson County	30	9-9:30 p.m.	6 *	2-1/2			2	4	Hail	Hailstones 1/2 to 3/4 inch in diameter ground covered. Storm moved northeastward.
NEBRASKA Gosper County (northern portion)	30	10:20-10:50 p.m.	14 *	1-1/2			3	5	Hail and electrical	Hailstones 1 inch in diameter. Crop damage by hail, property damage by lightning. Storm moved eastward.
NEBRASKA Loup City (north and west of), Sherman County	30	Evening					1	4	Hail	Hailstones small, but covered ground to depth of 2 inches.
NEBRASKA Bartley (south and east of), Red Willow County	30	Evening	6	*3			2	5	Hail	
SOUTH DAKOTA Rapid City, Pennington County	30	Night							Hail	33 B-52 bombers damaged at Air Base; 13 so severely as to be out of commission. 50 government vehicles also damaged. Some hail 3 inches in diameter.
	30									Minor storms also reported at Portland, Maine; in Baraga and Marquette Counties, Mich.; near Arcadia and northwest of Orchard, Nebr.; and in Richland County, N. Dak.
MINNESOTA West-central, north-central and northeastern portions	30-July 1	A.m.-a.m.			0	0			Wind, hail, rain, and funnels aloft	Storm moved across State beginning at Fergus Falls near 7 a.m., moved northeastward to Hibbing-Duluth area, continuing well into morning of July 1. 12 barns damaged or destroyed in Otter Tail County, 2 in Wadena County and 3 in Becker County. Several lake cottages damaged. Hundreds of Norway pines downed. Hail damaged crops in Becker, Clay, Grant, Morrison, Otter Tail, Pope, Todd, Wadena, and Wilkin Counties. 5-inch rain or more in Duluth area flooded Duluth proper, doing \$150,000 damage. New 24-hour record ending 6 a.m., July 1 at Duluth Weather Bureau City Office established -- 5.36 inches. At Willow River Minnesota Forestry Nursery, unofficial 6.07 inches of rainfall washed out 3-1/2 million 1 year-old pine tree seedlings. Funnel clouds, not touching ground, reported at Pelican Lake north of Fergus Falls, at Wadena, and northeast of Brainerd.
DELATED REPORTS										
ILLINOIS Swansea, St. Clair County	June 1	12:03 a.m.	** 700	100	0	0	3		Tornado	Moved east-northeastward. Struck southwest side of Swansea near Belleville.
ILLINOIS Collinsville (near), Madison County	1	12:30 a.m.	** 150	50	0	0	3		Tornado	Moved northeastward; destroyed small house at State Park Place, west of Collinsville.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JUNE 1958

Place	Date	Time	Length of path miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
LATE REPORTS										
COLORADO Weld County	May 18	2 p.m.					3		Rain and hail	Heavy rain and 4-inch hail in vicinity of Ft. Lupton did damage to windows, roofs, and crops. Heaviest damage to east of town. Storm moved northeastward.
COLORADO Las Animas, Bent County	18	8 p.m.				1			Electrical	Lightning injured a woman.
KANSAS Pawnee County	21	2:30 a.m.					3		Electrical	Lightning struck high school in Larned, damaging chimney and other masonry.
COLORADO El Paso County (eastern portion)	22	Afternoon							Rain, hail, and wind	Sudden rain-and hailstorm, driven by high wind destroyed wheat crop, in Rush and Yoder areas, and did damage to newly planted crops by flooding. Up to 8 inches of hail and 3 inches of rain reported.
COLORADO Las Animas area, Bent County	27	Afternoon					2		Wind	Strong wind broke tree limbs, and caused other minor damage in town. North of town, granary moved from its foundation.
COLORADO Kim (near), Las Animas County	27	Late evening					3	4	Hail and wind	Over 20 farms affected. Buildings, roofs, and windows damaged. Wheat losses estimated at 10 to 75 percent, with a few total losses.
COLORADO Phillips and Yuma Counties	28	Afternoon					3		Hail and wind	Several thousand dollars worth of damage to roofs, windows, neon signs, and gardens in Wray. In adjoining farming areas of Wray and Holyoke, much damage to crops by walnut-size hail driven by strong wind.
KANSAS Lyon County	29	3:30 a.m.					4		Electrical	Lightning struck large machine shed near Geneseo, resulting in fire which consumed building, 2 large tractors, a 1-ton truck, and numerous other farm tools.
MONTANA Moccasin, Danvers, and Kolin area Judith Basin County	29	1 p.m.	35	* 3-1/2			1	4	Hail	Average diameter of hailstones 1/2 inch. Storm moved northeastward.
ILLINOIS and MISSOURI	31	11:20- 11:30 p.m.	8	35	0	0	4		Tornado	Tornado moved east-southeastward from Missouri across southern tip of Calhoun County, Ill., and back to Missouri side of Mississippi River. Light damage near Golden Eagle Ferry, Ill. Heavy damage to boat docks. Near South Shore, Mo., 2 cabin cruisers and a houseboat overturned.
NORTH CAROLINA Anson and Montgomery Counties	6	3-4 p.m.							Hail	\$39,000 additional crop damage.
NORTH CAROLINA Wilkes County	17	2 p.m.							Hail	\$5,000 additional crop damage.
NORTH CAROLINA Simpson County	28	4:30 p.m.							Wind	\$30,000 additional crop damage.
NORTH CAROLINA Durham and Wilson Counties	28	8 p.m.							Hail	\$20,000 additional crop damage.

CORRECTION

ILLINOIS Sibley	April 5								Tornado	Length of path 5 miles instead of 1/2 mile. Damaged 2 farmsteads between Sidney and Melvin.
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- * Miles instead of yards.
- ** Yards instead of miles.
- ° Includes crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

Compiled by Howard C. Sumner
Weather Bureau
Washington, D. C.

Tropical storm ALMA developed along the western fringe of the Gulf of Mexico on June 14 from a low pressure area that had drifted northwestward from the Bay of Campeche during the previous day. Reaching tropical storm intensity about 150 miles east of Tampico, Mexico, near noon on the 14th, the center moved north-northwestward and passed inland about 75 miles south of Brownsville, Texas, early on the 15th. Later the storm became disorganized as it moved up the lower Rio Grande Valley and it lost its identity in the vicinity of Del Rio, Texas, on June 16, although heavy storm-induced rains continued during the following day and night.

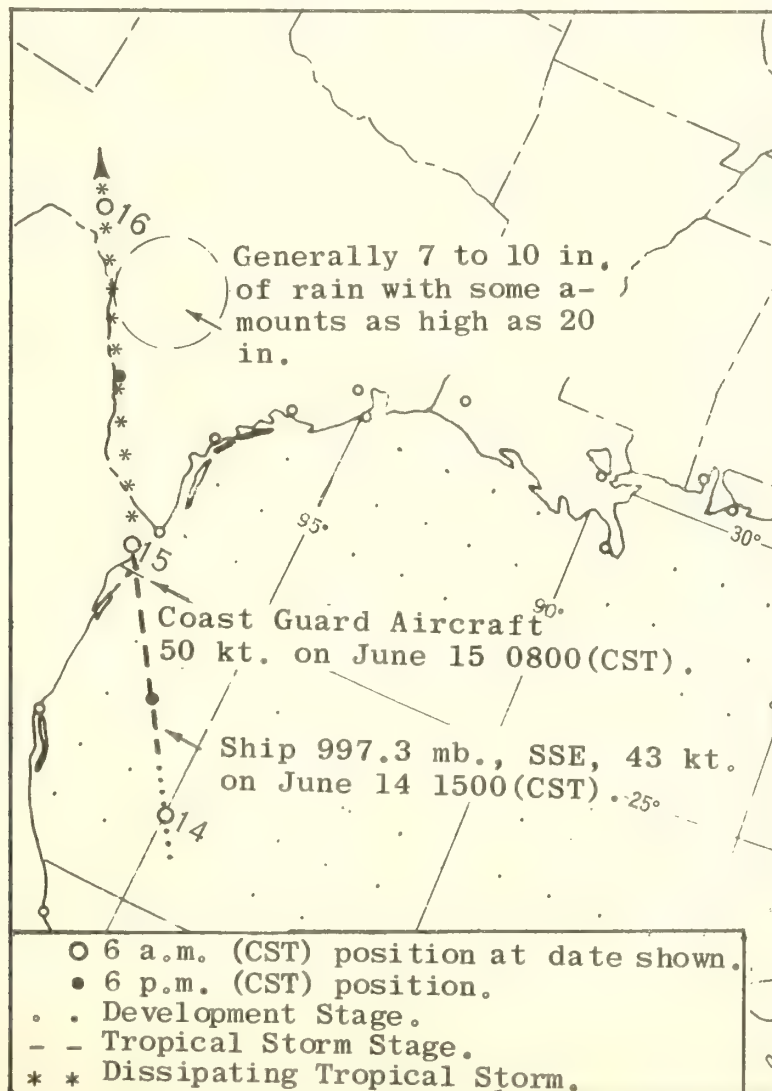
The highest winds associated with this storm were 45 to 50 m.p.h. reported by a ship near 22.8°N., 95.8°W.; 50 knots from a Coast Guard aircraft flying 50 miles south of Port Isabel, Texas, at 8 a.m. on June 15; and 40 m.p.h., with peak

gusts to 45 m.p.h., at South Padre Island, Texas, about 10 a.m. on the same date. Brownsville reported a fastest mile of 33 m.p.h., from the southeast with a peak gust of 38 m.p.h. at 8:22 (C.S.T.) on June 15.

A low pressure of 997.3 millibars (29.45 inches) was observed by the vessel mentioned above. The highest tide reported was 2.9 feet above mean low water at South Padre Island. Heavy rains averaging 7 to 10 inches fell in the hill country west of San Antonio with some amounts as high as 20 inches reported from the area west of Medina, Texas.

Damage from winds and tides associated with this storm was slight. There was, however, considerable damage to both crops and property from flooding as a result of the excessive rains. One drowning occurred in a heavy surf near Galveston during the storm period.

TROPICAL STORM ALMA JUNE 14-16, 1958



GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JUNE, 1958

The greatest summertime flood of record occurred in the Wabash and White River Basins in Indiana during June. The river levels were generally the highest since May 1943 and in some cases the highest since March 1913. A record crest was reached on the Mississinewa River at Marion, Indiana. The total crop damage was estimated at \$10 million.

Flash floods occurred along the creeks and rivers that head in the Edwards Plateau escarpment in Texas from the heavy rains accompanying tropical storm Alma as it moved inland south of Brownsville, Tex., on June 15. The stages on the Sabinal, Seco, Blanco, and upper Hondo were the highest in several years.

ST. LAWRENCE DRAINAGE

The flooding on the St. Marys River at Decatur, Ind., from the 10th to the 18th was due to heavy rains during the 48-hour period between the 8th and 10th. Moderate rains on the 13th and 14th caused the Maumee River to rise slightly above flood stage on the 14th. This was the wettest June in 48 years of record at Ft. Wayne, Ind., with a total of 8.29 inches, 4.73 inches above normal.

ATLANTIC SLOPE DRAINAGE

The Roanoke River at Williamston, N. C., receded below flood stage on the 8th. It had been in flood at this point since April 1. The highest stage reached was 11.5 feet on May 11 to 14; this was 1.5 feet above flood stage.

EAST GULF OF MEXICO DRAINAGE

The minor flooding on the Pearl River at and below Jackson, Miss., from the 17th to the 30th was due to excessive rainfall which began on the 15th and reached a secondary peak of intensity on the 18th, 19th and 20th. The amounts reported on the 16th and 17th ranged from approximately 2 inches in the reach above Jackson to over 6 inches in the Jackson area. Only minor damages occurred in the forested areas that were flooded.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--Heavy rains on the 4th over southeastern Minnesota, with up to 5.5 inches in the Rochester area, caused minor flooding along the Zumbro, Cannon, and Root Rivers. There was some damage to bridges and roads in Olmsted County and city property in Rochester. A washout occurred on the Chicago-Great Western Railroad near Randolph, Minn., causing a minor wreck. Some scattered crop damage was reported.

The monthly mean stage of the Mississippi River at Fort Ripley, Minn., was 0.8 foot below the long-term mean. At Minneapolis, Minn., the mean stage of 4.6 feet was the lowest since 1948 and 3.2 feet below the long-term mean. At La Crosse, Wis., the monthly mean stage was 5.2 feet, 1.7 feet below normal and the lowest monthly mean since 1947 when 4.7 feet was recorded.

The minor flooding on the Racoon River at Jefferson, Iowa, from the 5th to the 8th was due to heavy rainfall on the 3d and 4th. It was especially heavy in the central portion of the Racoon drainage. Fort Dodge, Iowa, reported 4.24 inches and Manson, Iowa, reported 3 inches. Heavy rain occurred again on the 13th, averaging near 2 inches in central Iowa. The heaviest rainfall, averaging approximately 3 inches, occurred within 15 miles of Marshalltown and resulted in a sharp rise which

produced minor overflows on the Iowa River at Marshalltown, Iowa.

Heavy rains ranging from more than 1 to over 3 inches fell in central and northern Illinois on May 31 and June 1 and produced marked rises on the Illinois and tributaries. Stages at many points rose to within a few feet of bankfull. The intense rain produced local flooding in many areas and caused considerable damage to farm crops through erosion and washing. Another period of heavy rain between the 8th and 15th over central and northern Illinois and central Missouri produced major flooding on the Kaskaskia River and the Illinois and its tributaries but only half to near bankfull stages on streams in Missouri. Considerable damage resulted to crops and farm property.

Missouri Basin.--Heavy rains over the upper reaches of the Sun River from the 10th to the 13th caused a rise to bankfull stage at Simms, Mont., on the 11th and 13th. At Great Falls, Mont., the river was out of its banks for over 2 days. There was some overflow and damage to farmlands along the lower Sun River.

There was considerable light overflow in streams in the lower Missouri Basin in Missouri from the 14th to the 19th, following the heavy rains on the 14th and 15th. Moderate damage resulted to crops along the Blackwater River. The heaviest damage occurred to crops along the Lamine River.

Intense thundershowers (2 to 3 inches) in west-central Missouri and eastern Kansas on the 24th and 25th caused the Osage River to overflow at Schell City, Mo., from the 27th to the 30th and Mill Creek in Kansas on the 25th and Pottowatomie Creek on the 25th and 26th. Flood damage was minor.

Ohio Basin.--Frequent heavy rains over the middle and upper Scioto River drainage between the 8th and 13th resulted in considerable flooding in the area between Columbus and Circleville, Ohio. Approximately 2,000 acres of corn was under water almost continuously from late on the 11th to early on the 16th. Most of this acreage has since been reseeded in corn. Additional hundreds of acres of cultivated cropland were inundated by the frequent and heavy rains during the middle of the month. Much of the acreage has been replanted though considerable loss has been sustained through spoilage of the first hay crop.

Frequent heavy rains between the 8th and 17th produced the greatest summertime flood of record in the Wabash and White River Basins in Indiana from the standpoint of crop destruction. In some cases the stages were the highest since 1913. Generally the river level was the highest since 1943 along most of the lower reaches of the Wabash from above Vincennes to La Fayette, Ind., and above. Rainfall for the period of the 8th to the 17th averaged about 7 or 8 inches over the Wabash, and totals for the period ranged from about 3.5 inches at Hutsonville to 12.82 inches at Kokomo. The greatest single 24-hour amount reported was 5.65 inches at Marion on the 9th, followed by 5.54 and 4.72 inches at Monticello and Kokomo, respectively. Rainfall was heavy over the upper White and averaged nearly 10 inches for the area above Indianapolis from the 8th to the 15th, with totals ranging upwards to 12.7 inches at Muncie, Ind. The average rainfall over the lower White and East Fork during the same period was slightly more than one-half as much. The concentrations of heavy rain over the upper White caused a rapid rise at Anderson to a crest stage of 20 feet on the 14th, only 0.6

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

JUNE 1958

foot below the alltime destructive crest of 20.6 feet in March 1913. Although rainfall was lighter over the East Fork, crests were above flood stage over the upper portion of the river. The crest on the White River tended to flatten out somewhat as it moved downstream toward Noblesville and Indianapolis, Ind. A number of homes were damaged in the Ravenswood area, four, to the extent that they were condemned. As the flood crest moved down the Wabash, the levees at Peru, Ind., held by only a thin line of sandbags, although many homes in the area were flooded. As the crest passed downstream from Covington to just above Vincennes, the giant Niblack Levee collapsed, flooding 11,600 acres. Hundreds of weary volunteer workers were forced to admit defeat as one levee after another failed. In West Terre Haute, the break in the Sugar Creek Levee forced evacuation of about 1,500 persons and closed U. S. Highway 40. As levees continued to crumble, thousands of acres of corn and other crops were irretrievably lost, since the late season precluded further planting. In Clinton, about 80 homes in the northern section of the city were evacuated, comprising an area about 3 blocks square, as the rising Wabash backed up Feather Creek. The busy U. S. Highway 41 from Chicago to Evansville was closed in several places as the Wabash crest moved downstream. Many homes were flooded at Marion, Ind., as the Mississinewa River reached a record crest of 16.84 feet. A preliminary statement by the Red Cross indicates that 2,630 homes were damaged by flood waters in Indiana, but this does not include homes having flooded basements only. Fourteen homes were completely destroyed, and 54 others received major damage. A preliminary newspaper estimate indicated about 1 million acres flooded with a total crop damage of \$10 million.

White Basin.--Flooding continued on the lower White at Clarendon, Ark., until June 4. It had been in flood at this point since March 24, for a total of 73 days. Further downstream at St. Charles, Ark., it remained in flood from March 28 to June 5 for a total of 70 days. The only damage from flooding during the month was the continued loss of the use of lowlands, adjacent to the stream, for agricultural and grazing purposes.

Arkansas Basin.--Some flash flooding was reported on Eagle Creek near Olpe, Kans., due to 3 to 5 inches of rain on the 12th. Only minor rises were reported on the Cottonwood and Neosho Rivers at Emporia, Kans., from this rain, with rises of one-half to three-fourths bankfull reported downstream on the Neosho. The heavy rain on the 25th caused another rise on the Neosho to above bankfull stage from Le Roy, Kans., to Oswego, Kans. Flash flooding occurred on Uncle John, Sand, and Cottonwood Creeks in Kingfisher and Logan Counties of Oklahoma in the early morning hours of the 26th. The Cottonwood Creek reached a crest of 3.9 feet above flood stage at Guthrie, Okla., at 6 a.m. on the 26th. This was the highest stage at this point since 1949. About 400 people were forced to flee from their homes in Guthrie about 1 a.m.

Red Basin.--The Ouachita and Black Rivers in Louisiana were still in flood as the month opened, but stages were falling slowly. The Ouachita, which reached a record crest of 50.45 feet on May 23, went below flood stage on the 28th. The Black River went below flood stage at Jonesville, La., on the 11th.

The Sulphur River at Naples, Tex., receded below

flood stage on June 12. It had been in flood at this point since April 27 for a total of 47 days. Additional flooding began on the Sulphur at Hagansport, Tex., on the 17th and at Naples, Tex., on the 24th. It was back within its banks on the 28th. This secondary flooding was due to heavy rains that fell between the 15th and 17th. One of the largest totals for the 2-day period was 5.11 inches at Mt. Pleasant, Tex. Several other stations reported amounts over 4 inches. Little or no damage resulted from this flooding as the land which overflowed is used mostly for grazing.

Lower Mississippi Basin.--The St. Francis River at Fisk, Mo., reached bankfull stage on the 15th and 17th from the moderate to heavy rains on the 11th. The resulting damage was negligible.

The Yazoo River was in flood from Yazoo City, Miss., to its mouth from April 29 to June 10, for a total of 43 days. Heavy rains of 3.5 inches in the Bovina, Miss., area caused the Big Black River to rise rapidly to just below flood stage on the 17th, but the river began to recede rapidly and only minor flooding occurred in low places.

WEST GULF OF MEXICO DRAINAGE

As the month began the Sabine River from Bon Wier to Deweyville, Tex., was slightly more than 1 foot above flood stage but falling. The river dropped below flood stage at Bon Wier, Tex., by the 2d, and at Deweyville by the 5th.

The flooding on the Trinity River continued at Liberty, Tex., from May 4 to June 3, for a total of 31 days.

Very heavy rains of up to 20 inches over the upper portion of the Medina River near Medina, Tex., filled the Medina Reservoir for the first time in over 20 years. The damage that resulted was mostly from runoff of rain rather than from flooding of streams.

A flash flood occurred on Barton Creek which drains into the Colorado River in the city of Austin, Tex., just downstream from the Austin Dam of the Colorado River Authority. The flash flood caused severe damage to the Barton Springs Recreation area and is the third flood experienced in this location in the past year.

Heavy rains of up to 20 inches followed in the path of tropical storm Alma, as it moved inland on the 15th south of Brownsville, Tex. The heaviest rains occurred in the Texas counties of Maverick, Real, Bandera, Medina, Uvalde, Edwards, and Kinney, with lesser amounts falling in Zabala and La Salle Counties. Most amounts were from 6 to 10 inches, with some unofficial amounts of 16 to 20 inches. Flash flooding occurred along all of the creeks and rivers that head in the Edwards Plateau escarpment. The stages on the Sabinal, Seco, Blanco, and upper Hondo were the highest in several years. The highest of record on the Sabinal River at Sabinal, Tex., was reported as 33.4 feet on the 17th exceeding the 29.9 stage set in 1932. The rise on the Seco at D'Hanis was not as high as that in 1935. However, flood water was several inches deep in the town and forced evacuation of most homes. Both the Southern Pacific and Highway #90 were under water for a few hours. On the upper Hondo, a 30 foot rise was reported at the Hondo-Bandera road crossing. The combined flow from the West Nueces and extreme upper Nueces gave a stage of 0.6 foot higher than in 1955, or 25.2 feet, southwest of Uvalde, Tex., on the 17th. At Utopia, Tex., on the Sabinal River, the flood crest

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

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about equaled the 1932 stage. Flooding in the town of Utopia was due to the heavy rainfall of 16 inches and not to flooding from the Sabinal River. The Nueces flood crest flattened considerably by the time it reached Crystal City, with a stage estimated the same as in 1955. An unusual occurrence there was the backing of the flood water into the Turkey Creek channel and causing it to run upstream for a few miles. Flood damage was sustained mostly by dams, fences, bridges, and highway and railroad embankments. Damage to homes flooded was mainly furnishings. Several thousand acres of farm and ranch lands were flooded. No damage was reported on the lower Nueces and Frio Rivers. Some 700 persons were evacuated from their homes and summer camps.

A minor flash flood occurred on the Devils River at Bakers Crossing, Tex., on the 17th. The river was above flood stage at this point from near noon of the 17th to about 4 a.m. on the 18th. Part of this water overflowed the spillway of Lake Walk and a crest of 12.8 feet occurred at the I.B. & W.C. gage on the U. S. 90 Highway Bridge. The flooding was due to rainfall totaling 4.1 inches on the 16th and 17th. There was some damage to farm and ranch property and to roads and highways.

The high water on the Rio Grande in the reach at and above Albuquerque, N. Mex., early in the month was due to increased runoff from melting of high level snows caused by warm weather, plus unavoidable releases from filled or nearly full reservoirs. In the reach from Del Rio to Eagle Pass, Tex., the flooding was due to runoff from the Devils River and local runoff. The river was in flood at Del Rio for 8 hours and at Eagle Pass for 24 hours. The rains in this reach ranged from 2 to 3 inches in the Del Rio area to 4 to 6 inches in the Eagle Pass area. There was no damage on the

Rio Grande River.

GULF OF CALIFORNIA DRAINAGE

The Gunnison River at Delta, Colo., was above flood stage from May 8 to June 9, inclusive, except for a few days. The crest of 12.8 feet on May 24 approached within 0.7 foot of the record stage of 13.5 feet on June 6, 1957. This flood was due to runoff from snowmelt. A more complete report on this flooding is given in the previous issue of this publication.

Heavy local thundershowers on the 5th in the headwaters of the Roaring Fork which occurred near the peak of snowmelt runoff, caused brief flooding near Basalt and Carbondale, Colo. Minor damage occurred to farmland and property. Another heavy rain in and north of Grand Junction on the 6th caused Indian Wash, a normally dry drain, to overflow into many suburban and city residence properties in the Fruitvale-Northeast Grand Junction area. Most of the damage was to lawns, bridges, and roads, but water briefly entered a few homes.

The high water on the Animas at Durango, Colo., during the early part of June was due to increased runoff from the melting of high level snows caused by warm weather.

PACIFIC SLOPE DRAINAGE

The Willamette River at Portland, Oreg., was above flood stage from May 24 to June 10 for a total of 18 days. The crest was 20.0 feet, 2 feet above flood stage on May 31 and June 1. The Columbia River at Vancouver, Wash., was above the flood stage of 15 feet from May 20 to June 20. The crest of 20.3 feet occurred on May 31 and June 1. Flooding was confined to pastureland areas and did not result in large monetary losses.

FLOOD STAGE DATA

(All dates in June unless otherwise specified)

JUNE 1958

River and station	Flood stage	Above flood stages -dates		Crest*	
		From--	To--	Stage	Date
ST. LAWRENCE DRAINAGE	<i>ft</i>			<i>ft</i>	
Lake Erie					
St. Marys: Decatur, Ind.	13	10	18	19.2	14
Maumee: Ft. Wayne, Ind.	15	14	14	15.7	14
ATLANTIC SLOPE DRAINAGE					
Roanoke: Williamston, N. C.	10	Apr. 1	8	11.3 11.5	Apr. 18-24 May 11-14
EAST GULF OF MEXICO DRAINAGE					
Pearl: Jackson, Miss.	18	17	29	22.8	26
Bogalusa, La.	15	19	30	17.0	24
Pearl River, La.	12	23	29	12.5	27
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Zumbro: Rochester, Minn.	12	4	4	14.4	4
Zumbro Falls, Minn.	18	4	5	20.9	5
Theilman, Minn.	13	4	6	15.5	5
Root: Hokah, Minn.	45	5	7	48.7	6
Iowa: Marshalltown, Iowa	13	13	13	14.1	13
Raccoon: Jefferson, Iowa	10	5	8	11.7	7
Iroquois: Chebanse, Ill.	14	13	17	16.1	15
Spoon: Seville, Ill.	22	14	14	22.2	14
Sangamon: Riverton, Ill.	13	10	29	18.2	14
Illinois: Morris, Ill.	13	11 14	11 18	14.2 17.1	11 14
La Salle, Ill.	20	11	21	24.75	15
Peoria, Ill.	18	16	23	19.45	19
Havana, Ill.	14	14	July 1	17.0	20-21
Beardstown, Ill.	14	15	July 3	17.7	22
Kaskaskia: Shelbyville, Ill.	13	16	19	15.0	16
Carlyle, Ill.	21	19	28	21.6	27
Missouri Basin					
Mill Creek: Paxico, Kans.	14	25	25	15.2	25
Stranger Creek: Tonganoxie, Kans.	23	15	16	23.6	15
Blue: Kansas City, Mo.	21	14	14	22.6	14
Lamine: Clifton City, Mo.	14	15	16	21.0	15
Blackwater: Blue Lick, Mo.	25	16	19	27.8	17
Petite Saline: Boonville, Mo.	16	15	15	20.6	15
Moreau: Jefferson City, Mo.	20	15	16	22.1	15
Pottowatomie Creek: Garnett, Kans.	26	25	26	28.4	25
Osage: Shell City, Mo.	25	27	30	25.5	29
Ohio Basin					
Paint Creek: Bourneville, Ohio	10	14	14	12.95	14
Scioto: La Rue, Ohio	11	11 14	12 15	#12.0 #11.2	11 15
Circleville, Ohio	14	11 14	12 16	#15.1 #16.8	12 14
Chillicothe, Ohio	16	15	16	#17.9	16
Piketon, Ohio	16	13	17	20.7 20.65	15 17
Mississinewa: Marion, Ind.	13	10 15	12 15	16.8 14.5	11 15
Eel: Bowling Green, Ky.	17	12	12	17.9	12
East Fork: Seymour, Ind.	14	14	17	16.6	14
White:					
Muncie, Ind.	6	11 13	13 19	9.3 11.6	11 14
Anderson, Ind.	10	10 27	16 27	16.4 20.0 10.0	11 14 27
Noblesville, Ind.	14	11	16	20.55	15
Indianapolis, 10th St., Ind.	12	11	16	14.2	15
Indianapolis, Morris St., Ind.	16A	11 14	12 17	17.6 18.9	11 15

River and station	Flood stage	Above flood stages -dates		Crest*	
		From--	To--	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	<i>ft</i>			<i>ft</i>	
Ohio Basin (Cont'd.)					
Spencer, Ind.	14	12	21	21.4	14
Newberry, Ind.	18	15	20	20.6	16
Edwardsport, Ind.	15	13	25	22.9	17
Petersburg, Ind.	16	15	25	22.5	20
Hazleton, Ind.	16	16	26	23.3	21
Wabash: Bluffton, Ind.	10	10	17	14.2	13
Huntington, Ind.	16	11	16	19.1	14
Wabash, Ind.	12	10	18	21.6 22.5	11 13
Peru, Ind.	20	11	15	23.1 21.8	12 14
Logansport, Ind.	17	12	14	17.8 17.6	12 14
Lafayette, Ind.	11	9 26	23 27	26.3 12.4	14 27
Covington, Ind.	16	11 27	24 28	30.2 16.4	14 28
Montezuma, Ind.	14	11	29	32.1	15
Clinton, Ind.	18	11	24	31.5	15
Terre Haute, Ind.	14	11	30	27.6	16
Hutsonville, Ill.	20A	14	27	29.3	17
Riverton, Ind.	18	13	26	25.8	18
Vincennes, Ind.	16	15	1/	27.1	21
Mt. Carmel, Ill.	17	17	1/	24.6	22 23
New Harmony, Ind.	15	18	30	19.8	23
White Basin					
White: Clarendon, Ark.	26	Mar. 24	4	30.5	May 15
St. Charles, Ark.	25	Mar. 28	5	29.1	May 20
Arkansas Basin					
Neosho: Le Roy, Kans.	23	26	26	24.0	26
Iola, Kans.	15	25	27	16.1	26
Oswego, Kans.	15	28	29	15.7	28
Red Basin					
Quachita: Monroe, La.	40	May 3	28	50.45	May 23
Black: Jonesville, La.	50	May 14	11	53.0	May 29
Sulphur: Hagansport, Tex.	38	17	22	40.6	22
Naples, Tex.	22	Apr. 27 24	12 28	33.6 23.5	May 5 26
Lower Mississippi Basin					
St. Francis: Fisk, Mo.	20	15	15	20.0	15
Yazoo: Yazoo City, Miss.	29	Apr. 30	17 10	20.0 34.3	17 May 22
WEST GULF OF MEXICO DRAINAGE					
Sabine: Bon Wier, Tex.	17	May 14	2	21.2	May 24
Deweyville, Tex.	14	May 15	5	15.6	May 26
Trinity: Liberty, Tex.	24	May 4	3	28.35	May 21
Frio: Derby, Tex.	6	18	24	15.0	20
Callham, Tex.	12	24	30	25.2	26
Nueces: Cotulla, Tex.	15	23	28	19.7	24
Tilden Crossing, Tex.	11	28	1/	19.3	July 3
Devils: Bakers Crossing, Tex.	12	17	18	19.8	17
Rio Grande: Lobatos Bridge, Colo.	4	May 26 9	3 11	5.0	May 29
Embudo, N. Mex.	8	May 10	4	9.85	May 30
Espanola, N. Mex.	7	May 5	6	8.6	May 30
Albuquerque, N. Mex.	6	May 10	11	6.95	May 30
Del Rio, Tex.	15	18	18	15.9	18
Eagle Pass, Tex.	16	18	19	21.1	19
GULF OF CALIFORNIA DRAINAGE					
Eagle: Eagle, Colo.	5	May 26 2	May 31 4	5.7	5
Gunnison: Delta, Colo.	11	May 8 May 18	May 14 1	12.8	May 24
Animas: Durango, Colo.	5	6 21	9 21	7.3	7
PACIFIC SLOPE DRAINAGE					
Willamette: Portland, Oreg.	18	May 24	10	20.0	May 31, 1
Columbia: Vancouver, Wash.	15	May 20	20	20.3	May 31, 1
Ridgefield, Wash.	18	May 30	6	18.6	1

* Provisional
Highest Stage Observed
1/ Continued at the end of month
A Tentative

Average monthly values

JUNE 1958

Standard pressure surface (mb.)	ALBANY, N. Y. (1003 MB.)							ALBUQUERQUE, N. MEX (838 MB.)							AMARILLO, TEX (891 MB.)							ANCHORAGE, ALASKA (1011 MB.)							ANNETTE, ALASKA (1013 MB.)																																		
	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind																												
																																				Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Wind
SURFACE	30	86	13.7	80	219	3.3	30	1,619	18.9	44	101	3.1	30	1,095	17.6	76	178	4.5	30	30	10.6	77	184	4.1	30	37	12.9	83	328	1.9																																	
1,000--	30	109			195	3.7	30	66					30	120	9.2	30	6		30	122	5.2	77	182	5.2	30	18	13.3	80	339	3.1																																	
950--	30	542	12.7	68	255	6.8	30	517					30	535		30	546	8.9	30	546	8.9	68	169	9.2	30	581	13.2	70	351	5.1																																	
900--	30	994	10.7	66	275	11.5	30	997					30	1,010		30	996	6.8	30	996	6.8	68	145	6.8	30	1,034	11.2	67	341	4.1																																	
850--	30	1,466	8.0	65	203	14.8	30	1,495					30	1,500	19.7	52	215	16.3	30	1,464	4.1	69	137	9.7	30	1,510	8.9	60	305	4.1																																	
800--	30	1,968	5.6	58	283	17.3	30	2,019	19.6	37	217	3.5	30	2,021	18.0	47	231	16.5	30	1,954	1.1	70	146	11.9	30	2,010	6.7	50	278	4.5																																	
750--	30	2,497	3.5	51	278	21.2	30	2,569	16.3	37	260	6.2	30	2,567	15.0	45	246	13.4	30	2,466	-2.0	65	153	15.5	30	2,553	3.9	48	267	6.4																																	
700--	30	3,053	1.1	48	275	22.5	30	3,154	12.2	36	266	7.7	30	3,155	11.1	47	253	11.7	30	3,017	-4.9	59	156	17.9	30	3,095	1.5	47	219	6.8																																	
650--	30	3,644	-2.0	40	275	25.6	30	3,767	7	42	255	10.3	30	3,690	9.46	9	256	11.3	30	3,593	-9	52	174	15.9	30	3,678	-3.0	45	261	6.4																																	
600--	30	4,219	-5.6	46	279	29	30	4,25	2	3	47	244	13.8	30	4,418	2.0	47	264	10.3	30	4,216	-11.5	48	174	18.5	30	4,316	-6.7	39	252	8.0																																
550--	30	4,955	-9.4	41	276	31.7	30	5,115	-3.1	50	251	16.5	30	5,103	-3.1	44	281	11.3	30	4,871	-15.4	46	177	18.5	30	4,981	-10.8	37	248	7.8																																	
500--	30	5,689	-14.1	40	274	34.6	30	5,870	8	43	253	17.7	30	5,862	-8.4	39	288	13.6	30	5,592	-20.1	45	184	21.2	30	5,718	-15.8	37	241	9.7																																	
450--	30	6,473	-19.2	40	271	39.1	30	6,678	-13.2		261	18.7	30	6,668	-13.3		280	18.5	30	6,353	-25.4	44	184	20.0	30	6,493	-21.4	38	234	4.9																																	
400--	30	7,349	-25.3		270	43.3	30	7,571	-19.1		261	24.7	30	7,559	-19.7		281	22.5	30	7,210	-31.6	41	187	19.8	30	7,363	-27.8		227	6.8																																	
350--	30	8,306	-32.1		270	47.8	30	8,582	-25.8		267	27.2	30	8,649	-25.8		278	24.6	30	8,442	-38.3		196	22.5	30	8,649	-35.2		219	8.9																																	
300--	30	9,377	-39.8		269	56.7	30	9,651	-33.8		262	31.1	30	9,636	-33.8		278	34.8	30	9,186	-45.5		195	23.7	30	9,365	-43.7		208	8.4																																	
250--	30	10,602	-47.6		265	61.8	30	10,903	-43.4		264	35.1	30	10,893	-43.0		278	37.3	30	10,383	-51.9		193	20.2	30	10,567	-52.0		196	7.6																																	
200--	29	12,055	-54.2		270	63.5	30	12,370	-53.6		263	41.0	30	12,362	-53.7		277	42.2	30	11,826	-52.3		189	16.3	30	11,995	-56.5		255	3.3																																	
175--	29	12,909	-55.7		274	56.9	30	13,219	-58.6		261	42.9	30	13,211	-58.7		277	44.7	30	12,693	-50.5		182	16.9	30	12,844	-55.5		239	4.5																																	
150--	29	13,887	-56.9		270	49.7	30	14,176	-63.3		266	38.5	29	14,171	-63.3		279	45.9	29	13,708	-49.2		181	13.2	30	13,831	-53.7		282	4.5																																	
125--	29	15,042	-57.0		270	38.9	30	15,284	-68.1		264	35.4	29	15,278	-68.1		278	37.7	29	14,905	-49.3		175	9.1	30	15,006	-53.1		319	6.0																																	
100--	29	16,451	-57.8		272	28.4	30	16,711	-71.2		269	24.5	29	16,609	-71.2		278	29	28	16,367	-49.7		258	9.9	30	16,443	-53.1		331	3.3																																	
80--	29	17,862	-57.0		273	17.5	30	17,939	-67.9		269	8.9	27	17,935	-68.3		280	11.9	28	17,831	-49.1		134	8.2	30	17,882	-52.0		22	1.7																																	
60--	28	19,697	-54.0		276	3.7	30	19,699	-62.9		92	4.7	27	19,691	-61.1		99	5.6	28	19,722	-48.3		110	8.4	30	19,746	-51.0		59	5.6																																	
50--	28	20,874	-52.0		104	2.1	29	20,846	-56.6		82	10.7	26	20,839	-56.7		96	10.9	28	20,925	-47.7		103	10.5	29	20,935	-49.7		80	8.0																																	
40--	27	22,326	-49.7		93	6.6	29	22,373	-53.4		99	11.5	25	22,266	-53.4		96	13.6	28	22,402	-46.6		96	13.6	29	22,398	-48.3		85	9.3																																	
30--	23	24,206	-47.6		91	10.5	28	24,139	-49.8		90	14.8	24	24,136	-49.7		88	16.1	25	24,314	-45.0		96	15.2	28	24,302	-46.8		75	13.6																																	
25--	18	25,413	-45.6		87	9.7	23	25,334	-48.2		85	15.7	20	25,334	-47.3		89	17.5	10	25,539	-44.3		22	25,506	-45.5		22	25,506	-45.5																																		
20--	8	26,900	-13.5				26,811	-46.9					14	26,812	-44.7		92	15.9					7	27,005	-43.5																																						
15--													9	28,732	-40.9																																																
10--													6	31,486	-37.8																																																

ATHENS, GA. (987 MB.)										BARROW, ALASKA (1015 MB.)										BARTER IS., ALASKA (1013 MB.)										BETHEL, ALASKA (1010 MB.)										BISMARCK, N. DAK. (954 MB.)									
SURFACE	30	246	20.1	91	294	0.6	30	8	- 0.3	94	70	6.4	30	15	1.0	93	92	7.8	30	4	8.6	87	106	2.3	30	505	10.8	86	35	3.1																			
1,000--	30	130				30	127	5	91	82	7.0	30	118	1.6	88	94	9.7	30	86	9.0	82	117	2.3	30	112																								
950----	30	578	21.4	74	276	4.3	30	545	7.2	73	114	7.6	30	542	9.2	68	107	12.2	30	505	7.1	75	135	8.5	30	548			11	1.1																			
900----	30	1,045	19.5	72	277	6.0	30	990	7.0	60	126	6.0	30	986	9.0	49	123	8.4	30	953	4.2	76	143	11.5	30	997	12.2	68	324	2.1																			
850----	30	1,535	16.6	70	272	8.4	30	1,458	4.9	56	137	5.1	30	1,458	6.6	51	159	3.5	30	1,416	1.4	78	143	14.8	30	1,474	10.0	60	308	5.1																			
800----	30	2,049	13.3	70	269	9.9	30	1,951	2.5	58	147	4.7	30	1,953	3.7	51	223	3.7	30	1,902	- 1.4	79	137	14.8	30	1,977	7.3	64	314	8.5																			
750----	30	2,586	9.9	66	274	10.7	30	2,469	- 8	58	107	7	30	2,472	4	53	242	4	30	2,413	- 4.0	74	134	14.4	30	2,504	4.7	56	307	12.6																			
700----	30	3,102	7.1	51	273	11.5	30	3,019	- 4.1	55	179	5.9	30	3,024	- 3	50	234	2.1	30	2,957	- 40.9	66	141	16.1	30	3,061	1.1	55	301	15.3																			
650----	30	3,766	4.2	48	275	11.9	30	3,595	- 7.9	54	186	6.6	30	3,599	- 7.0	44	249	4.1	30	3,528	-10.0	60	140	17.3	30	3,656	- 2.1	53	295	18.8																			
600----	30	4,416	3	47	275	13.8	30	4,219	-11.7	49	190	7.8	30	4,227	-10.9	46	255	3.7	30	4,146	-13.5	56	135	19.4	30	4,291	- 6.1	49	291	22.7																			
550----	30	5,102	- 3.5	37	277	15.0	30	4,874	-15.9	46	192	9.1	30	4,884	-15.4	43	269	4.7	30	4,796	-17.7	48	138	21.2	30	4,960	-10.4	47	289	27.5																			
500----	30	5,857	- 7.9		283	17.7	30	5,593	-21.0	43	193	9.3	30	5,603	-20.5	41	281	6.2	30	5,510	-22.3	46	142	23.7	30	5,696	-15.1	40	289	29.5																			
450----	30	6,662	-12.9		284	21.4	30	6,354	-26.8	43	193	9.9	30	6,366	-25.9		283	7.4	30	6,269	-27.7	47	146	25.5	30	6,475	-20.6	35	289	34.0																			
400----	30	7,490	-17.9		287	22.0	30	7,222	-30.2	41	193	10.3	30	7,231	-33.2		286	10.1	30	7,111	-33.7	45	148	23.3	30	7,346	-26.9		289	38.1																			
350----	30	8,538	-25.9		285	21.8	30	8,129	-39.9		193	14.2	30	8,148	-38.9		279	12.2	30	8,037	-40.3		152	22.3	30	8,273	-39.9		289	41.0																			
300----	29	9,637	-34.1		290	23.5	30	9,167	-46.8		193	14.2	30	9,180	-46.3		282	15.2	30	9,075	-46.2		152	22.3	30	9,359	-42.0		261	40.9																			
250----	29	10,889	-43.5		291	26.4	30	10,359	-52.4		201	14.0	30	10,379	-53.1		290	13.8	30	10,275	-50.2		152	16.5	30	10,572	-40.1		262	45.2																			
200----	29	12,354	-54.0		298	26.2	30	11,806	-49.9		195	8.0	30	11,821	-50.4		279	8.4	30	11,739	-47.7		145	16.5	30	12,012	-54.4		260	54.2																			
175----	29	13,201	-59.1		301	21.2	28	12,683	-47.3		179	6.0	30	12,698	-48.0		267	6.2	30	12,625	-46.3		149	15.9	30	12,869	-54.6																						
150----	29	14,157	-64.0		312	16.7	28	13,705	-46.5		150	4.7	30	13,714	-47.0		278	5.6	30	13,649	-46.3		152	13.6	30	13,856	-54.1																						
125----	29	15,264	-67.4		306	16.7	28	14,916	-46.6		138	3.9	30	14,925	-47.1		263	2.7	30	14,860	-46.8		142	13.0	30	15,024	-54.7																						
100----	29	16,603	-68.7		325	15.3	28	16,397	-46.3		145	4	28	16,407	-47.1		263	1.4	30	16,338	-46.8		133	13.2	27	16,451	-55.7																						
80----	29	17,945	-66.3		351	7.2	28	17,084	-45.4		119	5.1	26	17,085	-46.1		36	1.4	30	17,813	-47.8		124	8.9	28	17,977	-55.7																						
60----	29	19,713	-60.5		73	8	28	19,806	-44.6		114	7.8	25	19,802	-45.1		72	6.4	29	19,709	-48.0		111	11.1	28	19,812	-53.4																						
50----	29	20,859	-56.7		83	13.2	28	21,029	-43.7		93	9.3	24	21,020	-44.1		81	8.2	29	20,913	-47.6		104	12.4	27	20,888	-51.6																						
40----	29	22,207	-52.9		97	14.2	27	22,521	-42.8		100	9.5	23	22,521	-43.2		92	10.9	27	22,389	-47.1		108	14.8	27	22,343	-49.2																						
30----	26	24,156	-49.4		88	15.1	26	24,477	-41.5		93	11.5	20	24,465	-42.4		87	13.0	27	24,299	-45.7		99	17.3	27	24,237	-47.2																						
25----	25	25,357	-47.5		87	18.9	22	25,712	-41.1		93	10.3	17	25,699	-41.3		89	16.7	17	25,528	-44.3				26	25,449	-45.5																						
20----	20	26,411	-45.0		92	17.7					13	12.7	22	26,396	-41.6		88	20.4							23	26,945	-42.9																						
15----	18	28,773	-41.4								11	29.0	205	-36.3			88	26.0							18	26,907	-39.9																						
10----	10	31,525	-37.6								7	32.0	332	-37.7																																			

[illegible]

See reference note at end of table

Average monthly values

JUNE 1954

[illegible]

DENVER, COLO. (838 MB.)										DODGE CITY, KANS. (823 MB.)										EL PASO, TEX. (879 MB.)										ELY, NEV. (808 MB.)										FAIRBANKS, ALASKA (997 MB.)									
SURFACE	30	1,611	12.5	79	226	1.9	30	792	17.1	84	79	1.4	30	1,197	22.7	53	120	0.6	30	1,908	6.5	52	185	7.8	30	135	13.0	72	349	0.6																			
1,000---	30	99					30	102					30	60					30	113					30	107			55	1.0																			
950---	30	536					30	516					30	512					30	549					30	540	13.5	55	246	4.5																			
900---	30	1,007					30	1,011	18.6	71	194	4.9	30	996					30	1,009					30	994	10.1	54	234	6.4																			
850---	30	1,493					30	1,503	19.0	55	238	7.2	30	1,493	2.9	42	168	2.9	30	1,486					30	1,468	7.7	58	211	6.8																			
800---	30	2,006	14.8	60	265	2.5	30	2,022	17.0	50	257	8.7	30	2,020	20.9	42	224	7.8	30	1,991	10.5	46	179	7.0	30	1,965	3.9	63	206	6.0																			
750---	30	2,517	15.1	51	267	4.5	30	2,527	17.5	50	272	9.7	30	2,517	17.5	44	240	8.3	30	2,533	11.5	46	177	7.4	30	2,511	11.7	65	196	9.1																			
700---	30	3,129	9.7	46	293	9.1	30	3,148	9.7	53	279	11.9	30	3,121	13.1	48	236	7.0	30	3,106	7.9	35	203	11.9	30	3,037	-3.8	70	203	9.9																			
650---	30	3,737	5.3	45	279	14.2	30	3,757	5.1	55	270	15.0	30	3,774	8.4	52	239	5.2	30	3,707	3.4	35	212	17.7	30	3,614	-7.6	71	201	9.3																			
600---	30	4,388		47	282	18.7	30	4,408		53	272	18.1	30	4,388	3.3	51	232	4.9	30	4,356	-1.6	36	215	19.8	30	4,238	-11.2	63	204	11.5																			
550---	30	5,071	-4.9	43	275	22.9	29	5,100	-3.9	51	277	22.7	29	5,126	-2.0	53	228	4.9	30	5,037	-6.7	34	220	23.7	30	4,897	-15.3	56	201	12.0																			
500---	30	5,823	-10.0	38	269	25.6	29	5,848	-8.6	44	273	23.5	29	5,887	-6.6	44	245	6.4	30	5,781	-11.3		232	31.3	30	5,616	-20.1	53	203	13.8																			
450---	30	6,621	-15.1		270	28.4	28	6,653	-13.9		274	25.8	29	6,696	-11.8		254	8.5	30	6,574	-16.9		236	33.8	30	6,387	-25.7	49	204	15.0																			
400---	30	7,508	-21.5		267	31.7	28	7,544	-19.8	33	272	31.9	29	7,587	-17.2		256	13.2	30	7,455	-23.6		242	37.1	30	7,242	-31.8	46	200	15.0																			
350---	30	8,405	-27.9		263	37.7	27	8,440	-26.0		270	37.7	29	8,485	-24.2		258	15.5	30	8,366	-30.9		233	42.4	30	8,153	-39.9		206	15.0																			
300---	30	9,567	-36.6		262	46.8	28	9,616	-34.6		275	26.8	29	9,660	-32.6		255	22.5	30	9,497	-38.5		249	50.1	30	9,203	-46.8		207	15.5																			
250---	30	10,807	-45.3		264	59.7	28	10,866	-44.3		273	30.7	29	10,951	-42.1		258	26.2	30	10,728	-47.0		249	50.1	30	10,396	-53.5		206	15.5																			
200---	30	12,266	-54.4		265	69.0	23	12,325	-54.3		277	40.6	29	12,425	-53.2		265	31.5	30	12,182	-54.2		246	11.830	-52.7	26	11,830	-52.7	21	111	17.5																		
175---	30	13,115	-58.2		265	67.6	23	13,172	-58.7		275	37.9	29	13,275	-59.0		265	30.1	29	13,033	-56.6		242	12,698	-50.5	26	12,698	-50.5	210	12.0																			
150---	30	14,079	-60.9		267	60.8	22	14,129	-62.1		279	33.2	27	14,233	-64.5		261	32.6	30	14,005	-59.0		242	13,707	-49.9	24	13,707	-49.9	203	9.1																			
125---	30	15,206	-63.4		267	47.0	22	15,249	-65.1		280	29.9	27	15,333	-70.0		268	25.1	29	15,145	-60.7		222	14,869	-48.4	22	14,869	-48.4	168	5.8																			
100---	30	16,571	-65.1		273	28.6	21	16,597	-65.1		285	21.3	27	16,645	-74.4		273	13.6	28	16,528	-61.8		211	16,362	-58.9	21	16,362	-58.9	158	5.6																			
80---	30	17,937	-62.7		269	8	21	17,947	-65.0		290	10.1	27	18,003	-69.4		274	10.3	27	17,906	-60.7		209	17,706	-60.7	20	17,706	-60.7	157	5.1																			
60---	30	19,731	-57.3		71	5.2	20	19,730	-59.0		86	6.6	27	19,703	-61.1		104	13.0	27	19,714	-55.9		19	19,732	-47.8	19	19,732	-47.8	113	8.5																			
50---	30	20,890	-54.5		84	6.6	19	20,886	-55.8		89	11.3	27	20,849	-56.2		89	16.1	27	20,881	-52.9		19	20,940	-46.9	19	20,940	-46.9	120	9.9																			
40---	30	22,331	-50.7		85	11.9	18	22,313	-52.6				26	22,278	-52.6		89	19.6	27	22,327	-50.9		17	22,416	-46.1	17	22,416	-46.1																					
30---	30	24,215	-47.9		90	12.6	14	24,177	-50.2				18	24,152	-48.2		91	21.4	23	24,210	-47.2		11	24,312	-44.0	11	24,312	-44.0																					
25---	14	25,415	-45.6		91	14.0	11	25,372	-47.7				23	25,358	-46.1		24	24.3	9	25,430	-44.8		8	25,546	-43.1	8	25,546	-43.1																					

FLINT, MICH. (985 MB.)										FORT WORTH, TEX. (992 MB.)										SANDWICH, MONT. (991 MB.)										GRAND JUNCTION, COLO. (950 MB.)										GREAT FALLS, MONT. (888 MB.)									
SURFACE	30	234	12.0	85	206	1.4	30	180	23.4	80	183	4	30	118	10.5	73	49	2.7	30	1,474	17.7	30	123	8.2	30	1,123	10.8	79	228	2.1																			
1,000---	30	110					30	110					30	118					30	53					30	114																							
950---	30	546	13.9	65	248	7.0	30	557	22.8	77	198	15.5	30	549					30	501					30	544																							
900---	30	997	11.8	58	269	12.0	30	1,030	21.1	73	205	15.9	30	1,005	12.9	58	353	3.3	30	977					30	1,012																							
850---	30	1,475	9.9	55	274	14.2	30	1,525	19.5	62	209	12.6	30	1,483	10.5	55	318	4.7	30	1,471	19.6	23	115	6.6	30	1,485	10.9	65	231	2.7																			
800---	30	1,977	7.4	53	276	15.7	30	2,046	17.0	55	208	9.3	30	1,985	7.3	56	308	6.6	30	1,992	19.6	23	169	7.4	30	1,989	8.1	66	282	2.5																			
750---	30	2,508	4.6	50	276	18.8	30	2,591	14.0	51	215	5.1	30	2,511	3.8	59	309	8.0	30	2,535	16.0	24	227	8.4	29	2,516	5.0	65	294	4.3																			
700---	30	3,065	1.4	51	275	23.5	30	3,173	10.6	49	244	4.1	30	3,071		6	58	299	11.3	30	3,125	11.4	27	247	12.2	29	3,079	1.3	66	284	6.8																		
650---	30	3,657	-2.0	47	276	25.5	30	3,784	6.4	49	288	2.3	30	3,653	-2.8	56	291	13.2	30	3,732	6.1	32	253	14.4	29	3,668	-2.3	65	278	9.7																			
600---	30	4,293	-5.5	43	280	28.4	30	4,138	1.7	47	307	4.5	30	4,254	-6.5	53	299	17.1	30	4,388		7	37	244	18.7	29	4,305	-6.0	57	275	14.0																		
550---	30	4,965	-9.9	37	282	30.3	30	5,127	-3.7	47	285	5.4	30	4,959	-10.7	47	295	21.0	30	5,069	-5.0	39	239	23.7	29	4,977	-10.0	49	270	16.1																			
500---	30	5,700	-14.1	36	283	34.2	30	5,883	-6.5	37	286	8.4	30	5,696	-15.5	43	284	25.1	30	5,822	-10.4	32	317	26.0	29	5,712	-14.7	46	272	17.3																			
450---	30	6,486	-19.5		283	36.9	30	6,689	-12.4		289	11.7	30	6,473	-20.7	38	283	28.2	30	6,619	-15.6		257	30.5	29	6,495	-20.1	40	269	21.2																			
400---	30	7,358	-25.6		283	42.4	30	7,586	-18.4		291	14.4	30	7,345	-26.9	41	279	29.7	30	7,506	-21.7		260	34.8	29	7,367	-26.4	38	271	24.1																			
350---	30	8,313	-32.6		282	49.2	30	8,570	-25.2		288	17.9	30	8,294	-34.0	40	276	29.9	30	8,476	-28.7		269	38.3	29	8,317	-34.0	34	266	29.3																			
300---	30	9,382	-40.4		282	56.0	30	9,671	-33.3		294	23.5	30	9,355	-42.5		274	35.9	30	9,563	-36.4		267	46.2	29	9,378	-42.3		2																				
250---	30	10,603	-48.3		278	65.3	30	10,927	-42.7		295	29.7	30	10,562	-51.5		270	32.3	30	10,805	-45.2		29	10,587	-50.9		2																						
200---	30	12,054	-53.5		280	68.4	30	12,398	-53.2		296	31.3	30	11,995	-54.8		270	31.9	30	12,267	-54.0		29	12,021	-54.6		2																						
175---	30	12,910	-55.4		283	65.5	29	13,248	-58.5		294	30.5	30	12,851	-53.7		270	29.7	29	13,120	-58.0		29	12,877	-54.1		2																						
150---	30	13,890	-61.5		284	53.4	29	14,206	-63.5		293	29.9	30	13,843	-53.7		270	29.7	29	14,085	-60.5		29	13,866	-54.0		2																						
125---	30	15,046	-67.9		285	42.0	29	15,311	-67.9		292	27.8	30	15,014	-64.8		270	29.7	29	15,213	-63.7		29	15,034	-64.3		2																						
100---	30	16,458	-57.9		281	31.7	29	16,634	-72.3		291	18.5	30	16,443	-54.9		270	29.7	29	16,575	-65.5		29	16,456	-55.7		2																						
80---	30	17,866	-57.3		282	18.8	29	17,957	-69.0		332	6.4	30	17,870	-54.8		26	17,935	-63.1		26	17,935	-63.1		29	17,879	-55.7		2																				
60---	29	19,697	-54.3		314	4.9	29	19,707	-61.7		92	10.7	28	19,719	-52.3		26	19,733	-57.2		26	19,733	-57.2		29	19,719	-53.6		10																				
50---	29	20,873	-52.0		67	4.9	29	20,848	-57.8		91	13.0	27	20,907	-50.5		25	20,896	-54.0		25	20,896	-54.0		27	20,897	-52.0		59																				
40---	28	22,322	-49.6		76	8.0	28	22,269	-53.9		90	17.7	27	22,267	-49.2		27	22,339	-51.0		27	22,339	-51.0		27	22,350	-49.7		75																				
30---	28	24,218	-47.0		91	10.5	28	24,138	-49.6		86	21.0	27	24,264	-46.8		22	24,234	-47.7		22	24,234	-47.7		26	24,246	-47.0		85																				
25---	27	25,428	-45.2		91	11.9	27	25,334	-57.4		86	22.0	24	25,482	-45.1		13	25,452	-46.5		13	25,452	-46.5		24	25,463	-45.5		83																				
20---	26	26,926	-42.8		91	13.2	24	26,817	-44.7		86	22.0	0	26,973	-44.1										13	26,952	-42.8																						
15---	24	28,083	-39.0		84	16.7	23	28,754	-41.9		90	24.9																																					
10---	8	31,700	-34.8				19	31,540	-36.6		87	20.8																																					
7---							9	34,004	-32.7																																								

See reference note at end of table

Average monthly values

JUNE 1958

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RAWINSONDE DATA

Average monthly values

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ST. PAUL IS., ALASKA (1005 MB.)										SALEM, OREG. (1008 MB.)										SALT LAKE CITY, UTAH (868 MB.)										SAN ANTONIO, TEX. (985 MB.)										SAN DIEGO, CALIF. (997 MB.)									
					Wind										Wind										Wind										Wind														
SURFACE					SURFACE					SURFACE					SURFACE					SURFACE					SURFACE					SURFACE					SURFACE														
Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed														
30	10	4.8	96	60	4.7	30	61	13.4	91	207	1.6	30	1,288	15.0	55	169	6.2	30	243	23.4	88	161	2.3	30	124	15.7	90	274	0.6	30	124	15.7	90	274	0.6														
1,000--	30	54		30	180	2.5	30	127	14.0	87	233	1.8	30	70				30	111					30	100																								
950--	30	170	3.4	90	109	6.8	30	556	13.0	80	352	3.1	30	570				30	558	22.1	86	165	10.3	30	536	14.4	81	262	.6	30	536	14.4	81	262	.6														
900--	30	911	2.1	88	116	8.0	30	1,014	11.6	77	1	2.7	30	978				30	1,029	19.9	81	176	16.7	30	996	17.3	42	302	3.3	30	996	17.3	42	302	3.3														
850--	30	1,371	.3	84	111	8.9	30	1,490	9.4	73	326	2.7	30	1,471	18.8	38	171	6.2	30	1,522	18.6	69	176	15.5	30	1,484	16.9	29	276	7.0	30	1,484	16.9	29	276	7.0													
800--	30	1,856	-1.7	78	115	9.5	30	1,991	7.0	68	311	3.9	30	1,990	16.6	32	184	7.4	30	2,041	16.7	58	172	12.2	30	1,999	15.5	24	247	8.4	30	1,999	15.5	24	247	8.4													
750--	30	2,362	-4.4	72	123	8.5	30	2,517	4.3	61	316	4.3	30	2,531	12.7	34	205	7.6	30	2,593	14.3	47	159	10.1	30	2,534	13.1		238	11.5	30	2,534	13.1		238	11.5													
700--	30	2,910	-7.1	72	135	8.0	30	3,078	1.2	56	293	4.1	30	3,110	8.3	37	224	10.3	30	3,169	11.4	40	143	7.6	30	3,121	9.9		233	13.4	30	3,121	9.9		233	13.4													
650--	30	3,479	-10.2	65	128	7.8	30	3,665	-1.9	47	280	4.1	30	3,714	3.6	42	234	15.0	30	3,785	7.5	39	115	6.6	30	3,726	6.5		227	16.5	30	3,726	6.5		227	16.5													
600--	30	4,078	-13.9	58	122	7.2	30	4,304	-5.7	44	260	4.3	30	4,360	-1.6	45	236	19.6	30	4,439	3.2	37	100	4.3	30	4,386	2.3		226	19.2	30	4,386	2.3		226	19.2													
550--	30	4,748	-18.1	50	112	7.4	30	4,971	-10.0	42	241	3.1	30	5,039	-7.0	45	234	23.7	30	5,132	-1.3	33	81	2.9	30	5,072	-2.5		228	20.0	30	5,072	-2.5		228	20.0													
500--	30	5,461	-22.6	40	122	7.6	30	5,710	-14.8	44	227	1.4	30	5,784	-12.0	33	233	26.0	30	5,894	-5.9		4	1.7	30	5,834	-7.5		232	24.3	30	5,834	-7.5		232	24.3													
450--	30	6,219	-28.0	38	106	5.8	30	6,491	-20.3	44	131	2.1	30	6,579	-17.4		237	30.7	30	6,707	-11.2		310	2.9	30	6,637	-13.3		232	27.0	30	6,637	-13.3		232	27.0													
400--	30	7,062	-34.1	34	175	4.3	30	7,362	-26.6	42	124	2.7	30	7,455	-23.5		237	37.3	30	7,608	-16.8		321	5.6	30	7,534	-20.0		233	31.5	30	7,534	-20.0		233	31.5													
350--	30	7,984	-41.0		218	7.2	30	8,312	-34.3		124	3.5	30	8,418	-30.6		240	42.6	30	8,597	-23.4		320	9.7	30	8,511	-27.0		233	38.1	30	8,511	-27.0		233	38.1													
300--	30	9,019	-46.7		211	1.6	29	9,372	-43.1		145	5.6	30	9,494	-38.7		240	49.4	30	9,707	-31.6		311	15.0	30	9,605	-35.3		234	45.3	30	9,605	-35.3		234	45.3													
250--	30	10,220	-49.2		215	7.2	29	10,576	-51.4		148	4.9	30	10,723	-47.2		241	59.7	30	10,971	-41.3		308	18.8	30	10,851	-44.6		233	51.7	30	10,851	-44.6		233	51.7													
200--	30	11,694	-46.2		156	5.2	29	12,051	-54.6		121	3.1	30	12,173	-55.0		244	69.4	30	12,452	-52.0		309	21.2	30	12,313	-54.7		236	59.8	30	12,313	-54.7		236	59.8													
150--	30	12,884	-45.4		150	4.3	29	12,866	-54.6		221	7.8	30	13,022	-57.3		246	66.3	30	13,305	-57.7		301	23.7	30	13,158	-59.5		233	60.8	30	13,158	-59.5		233	60.8													
100--	30	13,613	-45.4		109	3.7	29	13,854	-54.2		227	10.5	30	13,992	-59.0		249	55.6	30	14,265	-63.5		302	22.3	30	14,118	-62.5		232	52.7	30	14,118	-62.5		232	52.7													
50--	30	14,828	-46.0		92	6.4	28	15,024	-55.2		230	10.9	30	15,132	-60.4		248	42.4	30	15,368	-69.6		309	8.2	30	15,217	-67.2		231	41.2	30	15,217	-67.2		231	41.2													
0--	30	16,310	-46.8		131	8.9	28	16,445	-56.3		222	8.4	29	16,515	-61.8		248	23.1	29	16,681	-74.3		309	8.2	30	16,563	-70.0		232	21.6	30	16,563	-70.0		232	21.6													
	29	17,788	-47.1		120	10.1	28	17,861	-56.8		203	3.7	29	17,895	-62.2		248	6.0	28	17,987	-71.8		20	5.1	29	17,895	-67.9		231	6.6	29	17,895	-67.9		231	6.6													
	28	19,687	-47.8		114	10.5	27	19,692	-55.6		86	3.7	29	19,696	-57.4		62	4.7	26	19,722	-62.9		85	15.2	28	19,653	-61.7		210	8.0	28	19,653	-61.7		210	8.0													
	20	20,890	-48.1		102	12.2	27	20,858	-54.2		86	6.6	28	20,861	-54.6		79	7.2	26	20,856	-58.5		85	18.5	28	20,795	-57.6		97	11.1	28	20,795	-57.6		97	11.1													
	18	22,365	-47.8		127	13.0	26	22,298	-52.2		38	10.5	28	22,299	-52.1		76	9.1	25	22,273	-54.9		98	24.1	28	22,214	-54.5		84	14.4	28	22,214	-54.5		84	14.4													
	16	24,264	-47.3		110	13.7	25	24,171	-49.3		87	13.4	27	24,178	-48.4		77	11.9	25	24,129	-51.3		84	25.6	28	24,074	-50.3		83	19.0	28	24,074	-50.3		83	19.0													
	25	25,461	-47.0		88	20.2	21	25,358	-47.6		76	12.6	19	25,398	-46.4		86	13.2	23	25,319	-49.3		89	27.6	28	25,270	-47.9		79	21.2	28	25,270	-47.9		79	21.2													
	15	26,929	-46.5		15	26,836	-44.5		84	15.3	11	26,908	-43.7						25	26,776	-47.7				27	26,750	-45.2		82	19.4	27	26,750	-45.2		82	19.4													
	10				7	28,795	-40.5												5	28,677	-46.0				22	28,681	-41.4		80	18.7	22	28,681	-41.4		80	18.7													
																										7	31,480	-36.0																					

SAN JUAN, P. R. (1016 MB.)										SANTA MARTA, CALIF. (1005 MB.)										SANTA MONICA, CALIF. (1008 MB.)										SAULT STE. MARIE, MICH. (986 MB.)										SEATTLE, WASH. (1000 MB.)									
SURFACE					SURFACE					SURFACE					SURFACE					SURFACE					SURFACE					SURFACE					SURFACE														
Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed														
30	6	26.1	89	103	2.7	30	74	11.7	92	353	0.0	30	38	16.2	83	52	2.1	30	221	9.2	85	275	1.0	29	125	13.9	88	163	2.7	29	125	13.9	88	163	2.7														
1,000--	30	144	25.5	86	91	9.1	30	115	11.9	90	353	1.8	30	109	15.8	83	65	2.5	30	103	10.6	70	252	4.7	29	124	13.5	78	180	2.3	29	124	13.5	78	180	2.3													
950--	30	592	22.9	84	98	15.0	30	549	13.8	78	8	7.0	30	596	15.4	76	8	3.0	30	532	9.6	63	276	9.3	29	553	11.5	75	180	2.0	29	553	11.5	75	180	2.0													
900--	30	1,592	19.8	82	106	15.5	30	1,006	15.7	49	18	8.2	30	1,005	17.2	47	9	1.4	30	980	9.6	63	276	9.3	29	1,032	11.3	78	222	1.7	29	1,032	11.3	78	222	1.7													
850--	30	1,558	17.3	78	110																																												

RAWINSONDE DATA

Average monthly values

UNIT

Standard pressure surface (mb.)	TUCSON, ARIZ. (922 MB.)						WASHINGTON, D. C. (1005 MB.)						WINNEMUNGO, LA. (808 MB.)						FAIRBANKS, ALASKA (1017 MB.)						YUCCA FLAT, NEV. (878 MB.)						
	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		
				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed	Direction	Speed
SURFACE	28	781	23.2	34	157	4.3	30	88	17.1	83	243	1.7	30	1,310	10.8	73	35	0.6	30	12	9.4	94	200	0.8	30	1,196	13.1	32	235	1.4	
1,000----	28	66					30	128			243	1.9	30	1,05							91	257	1.7	30	76						
950-----	28	516					30	562	16.4	69	272	6.8	30	540							83	271	3.3	30	515						
900-----	28	996	26.2	30	196	3.1	30	1,025	14.3	65	283	9.5	30	1,003							73	251	2.7	30	983						
850-----	28	1,497	23.3	29	250	2.5	30	1,506	11.7	65	279	12.2	30	1,483	14.1	58	41	2.3	30	1,495	5.0	64	239	2.5	30	1,472	19.2	27	217	5.4	
800-----	28	2,022	19.8	31	231	3.3	30	2,011	9.2	56	279	15.9	30	1,994	12.0	54	332	2.3	30	1,990	3.3	58	246	2.7	30	1,990	16.2	27	203	12.8	
750-----	28	2,571	15.9	37	226	6.6	30	2,543	6.6	54	276	20.6	30	2,526	8.4	55	292	1.6	30	2,510		56	240	4.1	30	2,531	12.3	27	203	13.0	
700-----	28	3,157	11.7	41	215	9.5	30	3,108	3.8	48	276	22.7		3,098	4.5	55	232	5.2	30	3,064	-1.9	57	225	6.2	30	3,109	8.3	27	198	11.3	
650-----	28	3,770	7.5	42	210	11.5	30	3,704	-7	46	271	25.1	30	3,693	-6	53	218	11.3	30	3,642	-5.3	46	221	7.6	30	3,709	4.3	26	205	15.3	
600-----	28	4,427	2.8	46	212	13.2	30	4,346	-2.9	44	268	27.6	30	4,336	-3.8	54	214	17.7	30	4,275	-9.5	47	212	8.7	30	4,363	-1				
550-----	28	5,123	-2.1	46	216	13.6	30	5,022	-6.5	38	270	30.9	30	5,011	-8.2	48	216	19.8	30	4,935	-13.7	44	216	11.5	30	5,045	-3			223	24.9
500-----	28	5,878	-6.5		227	14.8	30	5,770	-11.1		270	32.8	30	5,752	-13.1	42	219	21.1	30	5,662	-18.5	40	218	12.4	30	5,798	-9.7			226	27.0
450-----	28	6,688	-12.0		236	14.8	30	6,566	-16.2		269	37.3	30	6,537	-18.8		219	23.1	30	6,432	-23.9	36	232	9.7	30	6,593	-15.3			229	32.3
400-----	28	7,587	-18.0		244	17.7	30	7,449	-22.3		269	42.2	30	7,414	-25.2	37	223	26.6	30	7,291	-30.1	37	230	14.0	30	7,484	-22.1			234	38.9
350-----	28	8,571	-24.9		247	21.6	30	8,418	-28.9		269	46.6	30	8,370	-32.6		228	31.1	30	8,228	-37.3		228	15.0	30	8,452	-29.4				
300-----	28	9,674	-33.2		245	26.0	30	9,503	-36.9		269	50.7	30	9,438	-40.5		230	40.2	30	9,275	-45.4		235	16.1	30	9,535	-37.6			235	51.9
250-----	28	10,930	-42.9		244	30.9	30	10,740	-46.0		270	50.7	29	10,663	-48.6		228	48.8	30	10,471	-52.3		261	15.7	30	10,770	-46.1			235	63.5
200-----	27	12,403	-53.6		241	37.3	30	12,193	-55.5		269	50.9	29	12,114	-53.1		233	53.2	30	11,903	-54.5		234	11.3	30	12,226	-54.3			236	70.3
175-----	26	13,252	-59.0		242	40.2	30	13,037	-58.9		274	46.6	28	12,972	-54.5		235	53.2	30	12,762	-52.8		221	12.0	30	13,077	-57.3			237	66.5
150-----	26	14,208	-64.2		242	38.5	30	14,000	-60.7		276	43.5	29	13,957	-56.0		235	43.1	30	13,760	-51.3		210	9.3	30	14,046	-59.8			237	56.3
125-----	26	15,310	-69.4		244	33.4	30	15,129	-62.3		274	36.1	26	15,122	-58.7		237	32.4	30	14,945	-51.2		192	6	30	15,176	-63.3				
100-----	24	16,627	-73.4		241	17.9	30	16,505	-62.7		273	26.8	24	16,519	-60.1		234	21.0	30	16,396	-51.1		271	1.6	26	16,532	-61.6			238	23.3
80-----	24	17,941	-70.0		179	4.1	30	17,886	-60.9		280	15.0	23	17,906	-60.3		240	5.2	30	17,849	-50.6		66	3.1	23	17,887	-62.7			212	8.7
60-----	24	19,684	-62.6		103	12.4	30	19,692	-56.7		50	3.3	22	19,709	-57.3		120	3.3	30	19,729	-49.5		87	8.4	21	19,681	-57.5				
50-----	24	20,822	-58.1		102	13.2	30	20,836	-53.7		96	5.6	22	20,866	-55.2		88	6.8	30	20,926	-48.5		89	8.4	20	20,840	-55.0			89	8.4
40-----	24	22,242	-54.8		88	16.3	30	22,301	-50.8		96	9.9	21	22,297	-53.0		72	11.9	30	22,398	-47.4		85	11.5	17	22,271	-52.4			81	9.5
30-----	24	24,103	-50.0		87	22.9	28	24,188	-47.2		88	13.4	21	24,165	-49.9		78	14.2	29	24,303	-46.0		88	14.8	14	24,160	-48.1			82	12.6
25-----	23	25,298	-47.8		89	23.1	27	25,400	-45.3		92	11.7	16	25,366	-48.0		86	15.7	28	25,516	-44.7		84	19.8	8	25,356	-43.1				
20-----	21	26,784	-45.1		86	22.7	26	26,898	-42.8		90	13.2	10	26,856	-45.5				28	27,015	-42.8		92	23.7							
15-----	6	28,689	-42.4				23	28,858	-39.3		90	14.2							21	28,944	-40.2		88	29.7							
10-----							8	31,645	-34.4										9	31,733	-34.9										

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 10 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been

computed and expressed on the basis of the mean pressure and the mean temperature. Humidity observations are obtained by direct measurements and are not corrected to compensate for the value selected, which is the value of the mean pressure.

The average value for the month of the dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and the number of wind observations in knots. The number of wind observations is the number of observations of which the results are shown in Table 22 in the January 1950 issue of the Monthly Weather Review.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in Langley's per minute on a surface normal to the direction of the sun

JUNE 1958

Sun's zenith distance

Sun's zenith distance

Date	A M					P M				
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	

ALBUQUERQUE, N. MEX.

Air mass

	1.11	2.35	2.94	1.17	*	1.17	2.35	2.94	1.19	
June										
1-----	0.91	0.98	1.10	1.25	1.44	1.24	1.09			
2-----	.95	1.01	1.15	1.26	1.47					
3-----					Cloudy					
4-----	.86	.94	1.06	1.21		1.26	1.12			
5-----					Cloudy					
6-----				1.17	1.31	1.45				
7-----					Cloudy					
8-----										
9-----										
10-----	.79	.87	1.00	1.13						
11-----					Cloudy					
12-17-----										
18-----										
19-----										
20-30-----					Cloudy					
21-----	.83	.83	1.01	1.13	1.33					
22-----										
23-----										
24-----					1.44			0.95	0.81	
25-----	.80	.94	1.08	1.23	1.40					
26-----	H .63	H .74	H .86	H 1.09	H 1.33	H 1.60	H .77	H .68	H .61	
27-----				H 1.06	H 1.35					
28-----	.80	.87	1.02	1.19	1.36					
29-30-----					Cloudy					
Aver- ages	0.83	0.91	1.05	1.19	1.40	1.17	0.99	0.82	0.71	

BLUE HILL, MASS.

Air mass

	1.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89	
June										
3-----	0.78	0.87	1.02	1.19	1.49	1.23	1.06	0.91	0.86	
4-----	.75	.87	.97	1.19						
5-----				1.22	1.44	1.21	1.07	.94	.85	
6-----	.75	.80	.98	1.21	1.39	1.13	.97	.82	.72	
7-----										
8-----										
9-----										
10-----										
11-----										
12-----										
13-----	.57	.75	.89	1.10	1.40	1.22	1.06	.94	.84	
14-----					1.42	1.21	1.05	.93	.82	
15-----										
16-----	.77	.88	.97	1.20						
Aver- ages	0.72	0.84	0.97	1.19	1.41	1.12	0.97	0.84	0.74	

WASHINGTON, D. C. (WBGO)

Air mass

	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00	
June										
14-----					1.16					
15-----										
16-----										
17-----										
18-----										
19-----										
20-----										
21-----										
22-----										
23-----										
24-----										
25-----										
26-----										
27-----										
28-----										
29-----										
30-----										
Aver- ages										

GUAM M. I. (WBO)

Air mass

	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92	
June										
23-----										
24-----										
25-----										
26-----										
27-----										
28-----										
29-----										
30-----										
Aver- ages										

1 Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station

Date	A M					P M				
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	

TUCSON, ARIZ.

Air mass

	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56	
June										
1-----	0.89	0.98	1.11	1.28	1.42	1.27	1.11	1.00	0.89	
2-----	.92	1.02	1.12	1.27	1.43	1.23	1.08	.97	.87	
3-----					1.42	1.22	1.08	.97	.88	
4-----	.94	1.06	1.15	1.29	1.47	1.29	1.10	1.00	.90	
5-----	.93	1.05	1.16	1.27	1.44	1.24	1.11	1.00	.90	
6-----	.97	1.06	1.12	1.26	1.47	1.28	1.14	1.03	.91	
7-----	.95	1.06	1.16	1.29	1.44	1.30	1.16	1.06	.93	
8-----					1.29					
9-----	.71	.83	.94	1.09	1.30	1.09	.93	.79	.66	
10-----	.76	.86	.97	1.10	1.32	1.11				
11-----	.85	.95	1.05	1.18	1.42	1.25	1.10	.98	.89	
12-----	.97	1.06	1.16	1.27	1.45	1.22	1.06	.96	.88	
13-----	.81	.90	1.01	1.14	1.29					
14-----	.77	.85	.96	1.12	1.32					
15-----										
16-----										
17-----										
18-----										
19-----										
20-----										
21-----										
22-----										
23-----										
24-----										
25-----										
26-----										
27-----										
28-----										
29-----										
30-----										
Aver- ages	0.87	0.97	1.08	1.21	1.32	1.23	1.09	0.98	0.87	

LINCOLN, NEBR.

Air mass

	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80	
June										
7-----					1.05	0.82	0.64			
15-----					0.97	1.20	.81	0.74	0.62	
17-----		0.76	0.86	1.00		.95	.79	.71	.63	
18-----					1.13		.84			
21-----					1.22	1.03	.91	.79		
25-----						1.03	.87	.79	.72	
26-----	0.71	.80	.89	.96			.84	.72		
27-----	H .64	H .74	H .93	H 1.04	H .74	H .65	H .51	H .41		
28-----	.54	.63	.73	.89	1.11	.88	.71	.60	.49	
29-----			.71	.88	1.13	.87	.79	.54	.44	
30-----	.47	.57	.69	.86	1.08	.78	.59	.46	.34	
Aver- ages	0.57	0.68	0.77	0.92	1.12	0.89	0.77	0.65	0.52	

OMAHA, NEBR.

Air mass

	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78	
June										
15-----					1.12	1.34	1.12			
17-----	S .76	S .84	S .94							
25-----	S .73	S .82	S .95	S 1.10						
26-----			M .79	M .98	I 1.19	I .85	I .63	M .43	M .28	
27-----										
28-----	I .56	I .66	I .77	M .98	M 1.20	H .95	H .73	H .58	S .45	
29-----					M 1.20	H .89	H .60	H .48	S .33	
30-----	M .52	M .55	M .70	M .92	M 1.21			M .45	M .30	
Aver- ages	0.64	0.72	0.83	1.02	1.03	0.95	0.66	0.49	0.34	

* Values corresponding to true solar noon.
H Haze.
I Intense haze - indeterminable.
M Moderate haze - indeterminable.
MH Moderate haze.
S Slight haze - indeterminable.

listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and average daily totals by weeks of solar and sky radiation for the period from January 1 to December 31, 1958, for a horizontal surface facing south at Blue Hill, Mass., during the month

Date-----	4	5	6	7	8	9	10	Avg	11	12	13	14	15	16	17	Avg	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg
Langleys-----	261	234	247	254	202	95	120	204	109	261	202	202	240	225	130	205	202	202	202	202	202	202	202	202	202	202	202	202	202	202	202
Date-----	25	26	27	28	29	30	1																								
Langleys-----	---	---	---	---	---	---	---																								

Daily totals and average daily totals by weeks of diffuse (sky) radiation received on a horizontal surface facing south at Blue Hill, Mass., during the month

Date-----	4	5	6	7	8	9	10	Avg	11	12	13	14	15	16	17	Avg	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg
Langleys-----	121	140	92	---	---	150	219	(141)	183	229	317	115	203	165	244	205	202	202	202	202	202	202	202	202	202	202	202	202	202	202	202
Date-----	25	26	27	28	29	30	1																								
Langleys-----	285	227	223	247	147	240	213	226																							

Note Langley is the unit used to denote one gram calorie per square centimeter

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

1958

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys . .	493	384	317	498	441	381	*239	369	503	493	493	**	495	*438	*431	483	440	496	497	*428	*113	*158	**	**	459	---	---	---	443	---	486	---

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero

** Radiometer inoperative.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature. North Carolina State College, Raleigh, N. C. The amount has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's.

JUNE 1958

	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Ore.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Canton Island	Cape Hatteras, N. C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Elly, Nev.	Parbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.
1958																														
June 4-----	733	713	669	578	350	572	128	380	780	625	759	588	308	725	646	646	718	689	740	630	777	812	611	695	659	683	---	---	---	521
June 5-----	766	748	(693)	525	641	439	373	786	715	562	698	585	639	550	681	429	429	516	516	532	696	786	616	684	508	742	---	---	---	609
June 6-----	741	694	---	127	610	271	397	778	786	490	784	501	640	716	---	795	616	549	443	795	743	827	498	682	636	742	716	---	---	750
June 7-----	651	245	---	655	561	341	243	663	766	626	745	578	540	721	---	---	541	606	745	732	714	830	648	670	650	617	669	---	---	386
June 8-----	819	357	---	607	404	724	365	743	482	430	747	579	846	221	---	---	697	347	748	132	775	719	478	719	687	662	644	---	---	472
June 9-----	859	385	---	348	616	376	460	484	254	466	---	585	727	772	707	285	609	721	667	208	786	784	---	708	681	602	447	---	---	559
June 10-----	822	368	---	289	689	676	425	624	272	626	286	569	799	564	(737)	354	609	680	661	430	795	689	---	579	667	587	---	---	---	586
Average-----	770	502	---	447	553	486	341	636	580	546	624	569	657	617	(693)	502	593	587	632	493	755	785	550	674	641	650	554	---	---	629
June 11-----	834	584	699	251	672	576	218	776	204	559	192	498	876	189	507	272	618	504	746	708	711	---	648	715	532	569	---	---	---	654
June 12-----	731	579	718	289	731	697	418	164	670	157	657	522	426	673	633	597	272	460	491	526	701	610	350	682	564	715	---	---	---	549
June 13-----	573	630	550	334	685	756	575	681	463	588	436	470	808	412	690	259	550	721	703	268	747	488	618	745	670	588	---	---	---	643
June 14-----	763	761	628	388	595	760	---	285	779	758	795	571	704	(518)	(693)	800	85	756	367	805	750	803	589	700	667	599	---	---	---	567
June 15-----	790	294	644	745	250	517	387	296	675	744	693	578	562	254	477	633	280	771	293	395	769	554	447	658	720	---	---	---	---	579
June 16-----	688	443	570	739	620	570	237	458	754	740	678	493	796	352	---	786	612	765	235	784	663	720	257	365	657	371	---	---	---	675
June 17-----	646	479	629	649	209	255	517	637	310	742	270	543	371	462	187	749	758	755	(526)	730	705	698	659	310	634	690	---	---	---	606
Average-----	718	530	634	485	537	590	392	468	551	613	532	525	649	(409)	(531)	585	453	676	(480)	602	721	686	525	566	626	607	---	---	---	610
June 18-----	718	765	(708)	465	697	516	581	684	662	747	626	570	778	493	669	525	274	708	693	707	753	680	718	705	650	---	---	---	---	580
June 19-----	714	762	91	227	390	722	312	707	69	694	44	(585)	743	672	535	426	401	738	779	510	709	807	547	596	652	---	---	---	---	666
June 20-----	531	611	525	501	624	587	346	663	106	699	131	498	499	608	521	462	649	731	616	439	548	822	551	547	650	367	---	---	---	500
June 21-----	467	684	481	638	620	709	494	616	153	739	108	538	427	508	(631)	638	681	776	537	631	730	816	456	310	644	341	---	---	---	409
June 22-----	(813)	762	538	293	414	356	319	753	624	722	527	558	125	300	330	632	214	763	728	654	736	799	439	402	374	---	---	---	---	686
June 23-----	826	581	249	284	---	606	195	651	413	605	411	439	247	650	123	451	632	785	760	500	766	688	462	633	658	210	---	---	---	385
June 24-----	824	454	727	180	---	360	216	754	655	640	665	547	617	563	479	361	455	771	298	398	(760)	814	619	702	680	466	---	---	---	537
Average-----	(699)	661	(474)	370	549	551	352	690	383	692	359	(534)	491	542	(470)	499	472	753	630	548	(715)	775	542	556	653	352	---	---	---	463
June 25-----	834	428	733	234	---	685	286	576	611	547	573	544	830	554	646	227	305	765	583	127	750	818	337	274	663	503	---	---	---	643
June 26-----	825	607	354	293	---	406	491	741	337	756	371	514	669	68	610	269	728	785	788	579	677	806	452	723	649	535	---	---	---	438
June 27-----	813	780	542	578	---	559	200	786	682	743	636	432	72	410	344	716	717	795	(772)	650	728	769	473	738	654	459	---	---	---	551
June 28-----	770	500	583	677	---	453	355	750	554	738	500	378	444	471	700	731	735	781	764	687	753	821	386	727	672	455	---	---	---	686
June 29-----	670	561	703	248	---	173	287	655	751	611	725	520	750	727	734	682	731	760	753	692	726	828	---	598	702	660	---	---	---	677
June 30-----	723	493	702	494	---	245	168	276	593	745	614	466	---	527	732	690	722	759	746	689	569	814	486	556	686	528	---	---	---	647
July 1-----	550	753	687	733	---	530	478	778	658	482	613	552	---	461	540	683	712	663	616	550	650	819	570	651	689	444	---	---	---	639
Average-----	741	589	616	465	---	436	323	652	598	660	576	486	553	460	615	571	664	758	(718)	568	693	811	451	610	673	512	---	---	---	612

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

JUNE 1958

	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Portland, Me.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	
1958																															
June 4-----	397	625	---	763	539	835	760	813	743	706	647	736	749	---	541	681	730	667	761	709	---	637	734	797	703	779	761	172	603	828	
June 5-----	---	469	---	631	655	764	344	798	710	599	516	644	629	---	471	655	706	635	698	685	---	597	689	796	612	779	761	172	603	828	
June 6-----	---	756	---	795	645	598	---	812	850	349	475	713	687	---	381	733	704	548	751	847	---	474	641	823	517	657	717	730	703	851	
June 7-----	548	690	896	814	559	788	700	833	859	629	618	784	755	672	509	689	707	744	768	792	---	740	737	767	453	751	771	277	727	845	
June 8-----	349	496	886	196	681	724	639	803	776	612	607	717	696	623	462	642	667	692	489	398	---	355	703	347	520	704	658	349	712	840	
June 9-----	629	358	890	423	610	870	787	806	262	480	581	778	751	258	604	598	695	407	211	269	---	331	706	453	788	774	---	467	836		
June 10-----	713	62	790	106	727	636	655	767	796	505	603	615	586	555	711	276	702	748	243	96	---	717	703	284	664	448	771	428	664	827	
Average-----	546	494	865	532	631	745	648	805	714	554	578	713	693	527	526	613	702	634	560	542	---	550	702	610	589	673	742	481	627	838	
June 11-----	700	519	896	408	649	540	586	802	747	594	363	660	496	---	370	371	525	420	345	447	---	539	704	150	679	268	555	584	675	562	
June 12-----	672	470	900	760	665	436	778	797	703	335	631	658	640	241	433	362	635	456	645	706	---	673	646	150	679	268	555	584	675	562	
June 13-----	688	369	898	145	556	650	755	805	---	547	605	787	730	440	659	570	722	737	487	318	---	644	684	367	676	167	772	673	640	844	
June 14-----	560	600	896	826	476	814	791	801	217	310	667	794	750	387	724	709	682	695	771	840	---	615	748	783	553	400	758	361	374	844	
June 15-----	272	436	897	690	469	844	748	793	270	772	168	631	668	243	722	706	400	572	720	598	---	539	547	823	589	613	748	555	509	766	
June 16-----	519	580	711	593	618	546	708	731	718	531	117	677	648	288	713	713	511	487	733	785	---	618	281	443	631	785	614	444	361	664	
June 17-----	191	385	864	393	347	715	666	771	784	(781)	632	765	739	700	567	702	549	747	335	739	---	700	666	420	656	619	758	574	134	728	
Average-----	515	480	866	545	540	649	719	786	490	(553)	455	710	667	383	598	590	575	588	577	633	---	613	612	519	631	462	710	475	480	748	
June 18-----	668	881	395	616	(667)	594	769	742	625	649	777	743	---	---	510	696	666	745	671	365	---	667	621	672	658	359	780	578	548	835	
June 19-----	327	135	889	684	420	517	504	816	250	677	444	793	750	484	207	708	705	546	76	311	687	633	571	340	700	729	789	598	598	836	
June 20-----	563	620	911	301	549	(379)	568	830	747	133	345	784	746	310	675	492	691	407	119	120	214	592	262	326	565	400	794	735	---	826	
June 21-----	555	547	879	648	431	705	482	---	226	(779)	154	764	727	---	713	392	350	392	259	140	764	453	---	103	177	756	698	816	---	824	
June 22-----	397	438	858	813	238	798	750	757	786	573	---	791	761	403	(636)	418	475	630	658	825	616	429	623	493	197	794	759	474	---	837	
June 23-----	426	515	902	528	665	792	720	792	631	588	---	785	735	---	(268)	675	671	667	410	553	462	703	612	598	213	637	790	537	---	793	
June 24-----	684	546	893	681	602	180	524	796	790	177	---	766	735	---	587	399	718	725	715	492	286	684	721	734	---	541	769	468	---	838	
Average-----	517	496	888	579	503	(577)	592	793	596	(507)	398	780	742	---	(514)	540	611	587	415	401	529	594	568	467	418	602	768	572	---	827	
June 25-----	675	168	896	407	672	616	658	801	643	601	---	705	717	678	741	241	580	621	619	560	668	712	171	598	646	845	738	654	---	851	
June 26-----	456	686	899	300	618	810	773	790	388	704	---	630	679	---	531	695	516	318	294	463	681	312	775	310	454	812	703	712	650	829	
June 27-----	680	648	901	640	529	752	718	792	732	(726)	---	624	659	---	529	717	604	638	634	723	724	724	785	784	742	699	(848)	719	684	720	832
June 28-----	705	661	912	791	702	825	748	812	812	723	---	558	719	448	736	174	672	683	590	652	718	739	771	680	640	796	756	716	526	869	
June 29-----	649	689	927	678	692	811	721	841	831	(721)	---	720	676	---	702	421	568	737	729	746	709	685	736	700	634	767	725	634	720	831	
June 30-----	654	710	909	458	699	821	775	815	789	(712)	---	712	726	---	531	447	712	672	633	617	703	602	701	---	691	(784)	779	234	684	804	
July 1-----	703	717	900	---	649	797	761	824	778	412	---	698	711	536	420	476	707	639	663	670	315	622	750	679	688	793	758	688	611	754	
Average-----	646	611	906	546	652	776	736	811	710	(657)	---	650	698	---	599	453	623	615	595	633	701	615	670	618	589	(807)	740	617	652	824	

Note. ---Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

JUNE 1958-

	S. Ste. Marie, Mich.	Saville, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Seattle, Wash. (U. of W.)	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Silver Hill Obs.)	Hawaii Mauna Loa Obs.	Aklavik, MacKenzie	Corvallis, Oreg.	Bartmouth, N. S.	Edmonton, Alberta	Lemont, Ill.	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Resolute, N.W.T.	Toronto, Ontario	Winnipeg, Manitoba
1958																								
June 4-----	482	733	565	547	479	504	614	605	524	526	(568)	688	811	539	589	364	576	470	335	552	546	689	503	237
June 5-----	790	761	540	725	635	594	746	636	541	703	(701)	658	657	464	409	287	688	537	305	96	377	690	487	735
June 6-----	830	840	647	179	180	365	528	795	615	713	(656)	717	723	167	136	163	685	727	668	399	775	591	767	660
June 7-----	759	830	635	778	---	647	593	801	613	773	675	756	807	456	573	763	492	552	448	316	596	451	736	(603)
June 8-----	701	417	200	758	---	697	575	205	570	800	505	582	(819)	740	388	546	583	119	440	---	151	683	162	719
June 9-----	198	346	156	116	642	643	783	(717)	503	784	619	503	804	719	414	394	140	257	462	---	749	739	584	305
June 10-----	171	75	70	235	161	630	218	406	663	802	(725)	587	808	653	287	587	619	191	373	530	124	764	260	708
Average-----	622	551	429	483	310	583	505	542	596	729	(649)	642	(776)	534	399	443	540	408	433	379	474	658	500	(567)
June 11-----	840	449	226	220	150	643	---	316	519	---	---	555	804	683	305	172	598	578	524	164	392	728	453	658
June 12-----	---	670	589	464	237	601	343	641	643	796	773	538	---	714	433	474	556	310	497	544	602	552	651	761
June 13-----	624	375	195	499	333	675	498	252	629	563	762	436	(719)	696	381	327	685	380	387	228	177	743	183	726
June 14-----	829	856	658	(769)	597	491	726	839	690	---	666	706	766	732	772	358	288	693	452	522	547	761	782	603
June 15-----	816	566	585	735	709	392	713	594	719	---	736	325	647	637	757	759	607	395	198	251	764	761	593	746
June 16-----	648	792	584	847	718	254	768	805	553	---	(558)	715	660	604	754	634	559	645	136	415	389	733	639	756
June 17-----	768	589	406	570	700	287	757	674	648	722	(722)	746	510	255	742	699	505	127	414	600	520	744	660	388
Average-----	754	614	463	(586)	495	478	634	589	629	---	(703)	577	(683)	617	592	489	543	447	372	389	484	717	566	663
June 18-----	763	582	469	784	700	467	694	80	703	749	745	376	574	390	733	540	387	404	717	530	754	760	628	743
June 19-----	781	205	556	539	544	(646)	731	638	704	698	715	659	(747)	645	547	594	750	229	696	700	---	729	616	569
June 20-----	634	99	360	589	533	399	733	49	596	234	746	84	(790)	644	706	654	608	533	156	568	504	735	525	675
June 21-----	723	173	609	740	668	429	728	151	245	503	716	231	810	718	735	366	631	720	420	72	645	595	514	658
June 22-----	538	770	613	808	683	241	728	711	491	762	716	741	803	489	745	317	467	421	383	376	617	568	721	699
June 23-----	579	505	447	646	519	(624)	685	360	614	757	762	313	800	402	---	714	705	482	608	708	642	661	655	632
June 24-----	305	729	445	164	76	(681)	196	589	478	781	717	386	(814)	643	226	694	715	442	646	601	623	721	631	517
Average-----	617	435	500	610	532	(498)	642	386	547	641	731	399	(763)	561	616	554	609	461	518	508	631	681	613	642
June 25-----	63	681	461	(732)	272	436	409	590	513	795	774	657	824	692	677	696	664	269	531	594	272	313	110	(324)
June 26-----	412	386	149	(536)	520	150	700	203	694	695	730	550	819	704	320	308	643	693	364	315	642	374	608	675
June 27-----	815	747	576	(680)	462	694	309	715	638	712	747	723	693	688	646	275	635	733	670	316	230	257	679	769
June 28-----	653	645	620	515	425	711	485	754	535	634	---	621	---	581	575	633	182	694	340	479	705	290	668	405
June 29-----	390	811	603	498	344	662	536	686	478	---	648	665	632	507	338	257	128	639	199	344	649	574	629	749
June 30-----	362	668	444	(590)	487	654	646	658	490	477	713	679	---	322	528	501	488	704	709	713	435	699	491	527
July 1-----	134	718	479	736	720	659	688	611	649	504	661	633	802	(691)	619	701	532	457	691	116	497	---	591	475
Average-----	404	665	476	(612)	461	567	539	615	571	636	712	647	733	(598)	529	481	468	599	501	411	490	418	540	(561)

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

CONDENSED CLIMATOLOGICAL SUMMARY

DELAYED DATA

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
December 1957		°F			°F			In.		In.
Alaska	Ketchikan	56	10	Allakaket	-65	31	Baranof	23.18	Point Lay	0.06
January 1958										
Alaska	2 stations	62	7+	Allakaket	-65	1	Little Port Walter	29.43	2 Stations	.05
February 1958										
Alaska	Ketchikan	58	22	Allakaket	-50	6	Shearwater Bay	16.15	2 Stations	.00
Hawaii	Olaa, Hawaii	90	11	Mauna Loa Slope Obs.	25	26	Kukaiaiu	14.78	3 Stations	.00
March 1958										
Alaska	2 Stations	56	25+	2 Stations	-39	10+	Shearwater Bay	12.16	Chitina	T
Hawaii	Olaa, Hawaii	90	4	Haleakala Sum, Maui	20	1	Lunalilo Home, Oahu	25.1	West Lawai, Kauai	.60
April 1958										
Alaska	Skagway	76	27	Barter Island WB AP	-31	5	Ketchikan	13.12	4 Stations	T
Hawaii	Puunene CAA AP	91	29	Mauna Loa Slope Obs.	27	10	Pepseekeo AF	15.20	10 Stations	.00
May 1958										
Hawaii	Puunene CAA AP	92	24	2 Stations	31	20+	Puohokamoa	24.35	5 Stations	.00

See footnotes with current data.

CORRECTIONS

page 504-508:

King Salmon, Alaska
Cold Bay,
St. Paul,
Bethel,
Lincoln, Nebr.

page 510:

page 537:

Anchorage, Alaska
Yakutat,

page 542:

page 38:

Norfolk, Va.

page 62:

Omaha, Nebr.

page 153:

New Haven, Conn.

page 169

California, Tule Lake

Month: November 1957

heights for 1000 mb. level for the following
stations should be:
-29 m.
-56 m.
-54 m.
-40 m.
data for November 1957 through March 31, 1958
are 2% high.

Month: December 1957

height for 1000 mb. level should be -42 m.
height for 1000 mb. level should be -40 m.

Month: February 1958

heating degree day accumulated total should be
2757, March 3412, April 3654, May 3698.
corrected solar radiation data appear on page
265 this issue. Also for November and December
1957 and January 1958.

Month: May 1958

heating degree day accumulated total should
be 5694.

add: storm moved northwestward.

Average monthly values

DELAYED DATA

See reference note at end of table

RAWINSONDE DATA

Average monthly values

DELAYED DATA

Standard pressure surface (mb.)	YUMA, ARIZ. 9/ (999 MB.)						BARTER ISLAND, ALASKA 10/ (1014 MB.)						MERIDA, MEXICO 10/ (1011 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity		Wind	Number of observations	Dynamic height	Temperature	Relative humidity		Wind	Number of observations	Dynamic height	Temperature	Relative humidity		Wind
				Direction	Speed					Direction	Speed					Direction	Speed	
SURFACE	30	105	16.5	51	340	0.6	31	15	-7.5	89	62	2.5	31	11	22.0	93	62	1.2
1,000---	30	93			74	.6	31	123	-7.3	85	63	2.9	31	108	23.3	86	94	4.3
850-----	30	532	18.2	34	326	6.8	31	527	-4.7	74	52	1.7	31	554	21.9	84	122	10.9
900-----	30	993	15.9	32	319	6.8	31	951	-3.3	68	215	1.4	31	1,027	20.0	74	120	9.1
850-----	30	1,475	12.6	33	312	7.4	31	1,403	-4.1	58	244	2.1	31	1,520	17.5	71	123	4.9
800-----	30	1,979	8.8	34	303	8.4	31	1,880	-6.3	56	246	2.9	31	2,036	14.7	62	159	2.5
750-----	30	2,508	5.5	30	301	9.7	31	2,380	-9.2	56	240	3.9	31	2,578	11.9	56	247	1.2
700-----	30	3,070	1.8	30	300	12.0	31	2,914	-12.4	51	248	5.1	31	3,156	8.7	51	282	2.7
650-----	30	3,660	-2.1		290	15.0	31	3,472	-16.0	51	248	6.2	31	3,760	5.1	47	294	4.1
600-----	30	4,294	-6.0		286	21.0	31	4,075	-20.0	47	246	6.4	31	4,416	1.8	41	306	5.2
550-----	30	4,965	-10.4		286	25.5	31	4,711	-24.3	46	245	7.8	31	5,106	-2.5	39	289	7.4
500-----	30	5,697	-15.5		284	27.8	31	5,405	-29.2	13	249	8.4	31	5,864	-7.0	35	286	9.7
450-----	30	6,478	-20.9		287	32.6	31	6,141	-34.8	12	253	10.7	31	6,674	-12.1	30	269	14.2
400-----	30	7,344	-27.7		285	38.7	31	6,962	-40.5		245	11.7	31	7,571	-18.2		263	18.3
350-----	30	8,289	-34.9		288	40.2	31	7,861	-46.2		247	13.0	31	8,553	-25.5		263	24.7
300-----	30	9,346	-43.0		283	50.5	31	8,873	-51.3		243	15.0	31	9,653	-33.9		255	31.3
250-----	30	10,552	-51.6		282	52.1	31	10,055	-51.1		244	15.2	31	10,904	-43.6		252	37.7
200-----	28	11,976	-58.2		280	67.8	31	11,525	-46.1		249	14.2	31	12,367	-55.0		244	38.3
175-----	24	12,818	-59.0		280	65.5	31	12,416	-45.3		242	11.3	31	13,209	-60.7		247	43.9
150-----	19	13,796	-60.8		276	70.7	31	13,444	-45.4		245	11.7	31	14,155	-66.2		253	45.7
125-----	12	14,926	-62.9		273	59.1	31	14,660	-45.8		237	8.9	31	15,249	-70.2		257	37.1
100-----	7	16,359	-67.1		30	16,138	-46.8		235	7.0	31	16,565	-73.2		268	24.5		
80-----					29	17,613	-47.0		224	5.6	30	17,874	-72.2		300	2.5		
60-----					28	19,523	-47.0		185	2.9	29	19,595	-64.9		94	9.7		
50-----					27	20,727	-46.9		138	3.5	27	20,715	-60.5		91	13.6		
40-----					24	22,197	-46.5		115	4.3	25	22,120	-56.3		83	18.8		
30-----					19	24,080	-46.3		101	6.2	25	23,969	-50.6		86	23.5		
25-----					15	25,301	-45.5		99	7.0	23	25,168	-48.4		91	30.9		
20-----					9	26,734	-45.3				20	26,646	-45.6		87	32.1		
15-----											14	28,569	-42.2		91	35.9		

1. August 1957
2. September 1957
3. October 1957
4. November 1957
5. December 1957
6. January 1958
7. February 1958
8. March 1958
9. April 1958
10. May 1958

Also see reference notes with current data.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

DELAYED DATA

Date	Sun's zenith distance									
	A. M.					P. M.				
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
MAUNA LOA OBS., HAWAII										
	Air mass									
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36	
Nov. 1957										
11-----	-----	-----	-----	-----	1.67	-----	-----	-----	-----	
12-----	-----	-----	-----	-----	1.64	-----	-----	-----	-----	
19-----	1.30	1.38	1.48	1.60	-----	-----	-----	-----	-----	
24-----	-----	-----	1.43	1.55	1.66	-----	-----	-----	-----	
25-----	1.28	1.36	1.47	1.59	1.68	1.44	1.33	1.25	-----	
26-----	1.30	1.38	-----	-----	-----	-----	1.33	1.26	-----	
27-----	1.31	1.40	1.50	1.61	1.70	-----	-----	-----	-----	
28-----	1.31	1.40	1.51	1.63	1.74	-----	-----	-----	-----	
29-----	1.32	-----	1.50	-----	-----	-----	-----	-----	-----	
Aver- ages	1.30	1.39	1.48	1.60	1.68	-----	1.44	1.33	1.26	
MAUNA LOA OBS., HAWAII										
	Air mass									
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36	
Dec. 1957										
9-----	1.13	1.26	1.30	1.42	1.46	-----	-----	-----	-----	
13-----	1.21	1.28	-----	1.53	-----	1.51	1.38	1.26	1.15	
14-----	1.23	1.30	-----	1.61	1.51	1.38	1.30	1.19	-----	
15-----	1.26	1.34	1.46	1.57	1.65	1.55	1.46	1.34	1.26	
16-----	1.32	1.42	1.51	1.63	1.72	1.55	1.23	1.17	1.07	
17-----	1.34	1.43	1.53	-----	-----	-----	-----	-----	-----	
18-----	1.26	1.36	1.48	1.63	1.72	1.65	1.53	1.46	1.36	
19-----	1.35	1.44	1.54	-----	1.72	-----	-----	-----	-----	
20-----	-----	-----	-----	-----	1.64	1.60	-----	-----	-----	
26-----	-----	-----	-----	-----	1.56	1.44	1.36	1.28	-----	
27-----	1.30	1.38	1.46	1.60	1.68	1.58	-----	-----	-----	
28-----	-----	-----	-----	-----	1.58	1.46	1.38	1.30	-----	
29-----	1.32	1.40	1.49	1.60	1.70	1.59	1.46	1.37	1.28	
30-----	1.33	1.43	1.52	1.63	1.71	1.59	1.46	1.36	1.29	
MAUNA LOA OBS., HAWAII										
	Air mass									
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36	
Jan. 1958										
1-----	1.35	1.44	1.52	1.63	1.71	1.56	1.56	1.35	1.26	
2-----	1.35	1.43	1.52	1.63	1.69	-----	-----	-----	-----	
3-----	1.33	1.41	1.51	1.63	1.68	1.63	1.53	1.44	1.35	
4-----	1.32	1.40	1.50	1.61	1.68	1.55	1.40	1.27	1.13	
5-----	1.30	1.39	1.48	1.58	1.69	1.58	1.43	1.31	1.18	
6-----	1.37	1.45	1.54	1.65	1.72	1.58	1.44	1.33	1.24	
7-----	1.36	1.44	1.53	1.64	1.71	1.58	1.47	1.38	1.28	
8-----	1.36	1.44	1.54	1.65	1.73	1.65	1.55	1.46	1.37	
9-----	1.38	1.46	1.55	1.65	1.68	1.54	1.43	1.34	1.25	
10-----	1.38	1.46	1.54	1.64	1.73	1.63	1.51	1.42	1.33	
11-----	1.27	1.36	1.46	1.58	1.66	1.53	1.42	1.33	1.23	
12-----	1.24	1.34	1.45	1.58	1.68	1.58	1.51	1.44	1.38	
13-----	1.33	1.41	1.51	1.62	1.69	1.54	1.44	1.38	1.31	
14-----	1.35	1.44	1.52	1.63	1.72	1.61	1.50	1.40	1.34	
15-----	1.30	1.38	1.50	1.62	1.69	1.53	-----	-----	-----	
16-----	1.33	1.40	1.50	1.62	1.67	-----	-----	-----	-----	
17-----	1.34	1.42	1.52	1.62	1.68	1.52	-----	-----	-----	
18-----	1.34	1.42	1.51	1.62	1.68	1.59	1.44	1.31	1.19	
19-----	1.34	1.41	1.51	1.61	1.68	-----	-----	-----	-----	
20-----	1.27	1.35	1.46	1.57	1.66	-----	-----	-----	-----	
21-----	1.26	1.34	1.45	1.57	1.67	-----	-----	-----	-----	
22-----	1.31	1.40	1.49	1.60	1.68	-----	-----	-----	-----	
24-----	-----	-----	-----	-----	1.72	1.61	1.50	1.41	1.33	
25-----	1.28	1.39	1.48	1.60	1.70	1.59	1.45	1.34	1.25	
26-----	1.30	1.38	1.47	1.58	1.65	1.51	1.37	1.25	1.16	
27-----	1.35	1.44	1.53	1.63	1.67	-----	-----	-----	-----	
28-----	1.36	1.44	1.53	1.64	-----	-----	-----	-----	-----	
29-----	1.33	-----	-----	-----	-----	-----	-----	-----	-----	
30-----	-----	-----	-----	-----	1.68	-----	1.45	1.35	1.26	
31-----	1.37	1.46	1.54	1.64	1.73	1.63	1.52	1.42	1.34	
Aver- ages	1.33	1.41	1.51	1.62	1.69	1.58	1.46	1.36	1.27	

Date	Sun's zenith distance									
	A. M.					P. M.				
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
OMAHA, NEBR.										
	Air mass									
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78	
Nov. 1957										
5-----	-----	-----	-----	-----	-----	1.19	-----	-----	-----	
9-----	0.99	1.10	1.21	1.36	1.38	1.36	1.19	1.08	0.99	
10-----	-----	-----	-----	1.12	1.14	1.14	1.06	.82	.73	
11-----	.82	.91	1.04	1.19	1.21	-----	-----	-----	-----	
19-----	-----	-----	-----	-----	1.27	-----	-----	-----	-----	
20-----	.95	1.06	1.19	-----	-----	-----	-----	-----	-----	
22-----	.97	1.10	1.19	-----	1.34	-----	1.19	1.04	.95	
24-----	.97	1.06	1.19	-----	1.30	-----	1.17	.97	-----	
28-----	1.01	1.17	1.21	-----	1.32	-----	1.10	-----	-----	
29-----	-----	-----	-----	-----	-----	-----	1.19	1.06	-----	
30-----	.97	-----	-----	-----	-----	-----	-----	-----	-----	
Aver- ages	.95	1.07	1.17	1.22	1.32	1.23	1.15	.99	.89	
OMAHA, NEBR.										
	Air mass									
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78	
Dec. 1957										
1-----	0.96	1.05	-----	-----	-----	-----	-----	-----	-----	
4-----	.95	1.04	1.17	-----	1.29	-----	1.16	0.99	0.93	
10-----	-----	-----	-----	-----	.74	-----	.76	.67	.67	
11-----	1.08	1.17	1.27	-----	1.36	-----	1.27	1.14	1.04	
13-----	-----	-----	-----	-----	1.32	-----	1.21	1.01	.91	
14-----	-----	-----	-----	-----	-----	-----	1.14	1.01	.89	
20-----	.99	1.19	1.21	-----	1.32	-----	-----	-----	-----	
23-----	1.01	1.10	1.23	-----	1.33	-----	1.23	1.17	.99	
26-----	-----	-----	-----	-----	-----	-----	1.10	.97	.86	
28-----	1.19	1.10	1.20	-----	-----	-----	-----	-----	-----	
29-----	-----	-----	-----	-----	-----	-----	1.04	.89	.80	
Aver- ages	1.03	1.11	1.22	-----	1.32	-----	1.11	.99	.89	
OMAHA, NEBR.										
	Air mass									
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78	
Jan. 1958										
1-----	-----	-----	-----	-----	1.45	-----	1.27	1.12	1.04	
2-----	1.04	1.09	1.19	-----	1.30	-----	1.23	1.10	1.04	
3-----	.93	1.06	1.21	-----	1.33	-----	-----	-----	-----	
6-----	1.04	1.06	1.23	-----	-----	-----	-----	-----	-----	
7-----	1.06	1.17	1.27	-----	-----	-----	-----	-----	-----	
8-----	-----	-----	-----	-----	1.36	-----	-----	-----	-----	
10-----	.77	.95	-----	-----	1.27	-----	1.19	.93	.89	
11-----	.82	1.01	1.14	-----	1.27	-----	-----	-----	-----	
23-----	-----	-----	1.21	-----	1.36	-----	1.10	-----	-----	
Aver- ages	.97	1.07	1.21	-----	1.32	-----	1.20	1.02	.99	

Langley is the unit used to denote one gram calorie per square centimeter.
 * An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of

pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

DELAYED DATA

Sun's zenith distance										Sun's zenith distance									
Date	A. M.				*	P. M.				Date	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
GUAM, M. I. (WBO)										OMAHA, NEBR.									
Air mass										Air mass									
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92		4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Mar. 1958							M0.51	M0.44		Feb. 1958									
2-----										2-----	M0.98	M1.06		M1.34	M1.36				
9-----				M1.19						3-----			M1.19	M1.35	M1.38				
11-----				M1.40						10-----				S1.41	S1.46				
12-----								S0.76		11-----	S1.10	S1.21	S1.32	S1.47	S1.49				
13-----				M1.35						15-----	S1.04	S1.12	S1.27	S1.42	S1.46	S1.41	S1.20	S0.93	S0.79
15-----			1.09							16-----	M.99	M1.09	M1.22						
17-----							M1.02			19-----			M1.32	M1.39					
18-----										22-----	M1.03	M1.11	M1.21	M1.38	M1.40				
26-----					M1.20					24-----					S.99	S.66	S.47	S.43	
										25-----	I .86	I .99	I 1.10	I 1.23	I 1.29	I 1.09	I .92	I .81	I .66
TUCSON, ARIZ.										LINCOLN, NEBR.									
Air mass										Air mass									
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56		4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Mar. 1958										April 1958									
5-----	0.91	1.02	1.11	1.28						7-----					1.27	1.03			
8-----				1.38	1.52	1.35	1.18	1.06	0.97	11-----	0.63	0.68	0.79	1.04	1.23	1.05	0.86	0.76	0.67
10-----					1.49	1.25	1.10	.95	.15	12-----			1.01	1.12	1.21		.99	.80	.72
14-----					1.45					14-----	.61	.70	.81	.93				.59	.52
15-----					1.42					15-----	.59	.69	.81	.96	1.16		.80	.69	
18-----	.93	1.01	1.11	1.27						16-----		.74	.84	1.01	1.17	.98	.84	.73	.65
19-----	.92	1.01	1.22	1.27	1.46	1.23	1.08	.94	.87	20-----	.70	.82	.95	1.09					
23-----	.92	1.02	1.15		1.47	1.28	1.13	1.01	.92	22-----	.76	.83							
25-----	.84	.95	1.07	1.23	1.40					24-----	.72	.79	.93	1.08					
27-----					1.44	1.24	1.09	.94	.85										
30-----					1.40	1.18	.98	.83	.73										
31-----	.78	.88	1.02	1.21	1.42														
Aver ages	.88	.98	.95	.97	1.45	1.26	.99	.96	.75	Aver- ages	.67	.75	.88	1.03	1.21	1.02	.87	.71	.64
* Values corresponding to true solar noon																			
M Moderate haze - indeterminate																			
S Slight haze - indeterminate																			
I Intense haze - indeterminate																			

* Values corresponding to true solar noon

M Moderate haze - indeterminable

S Slight haze - indeterminable

I Intense haze - indeterminable

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of

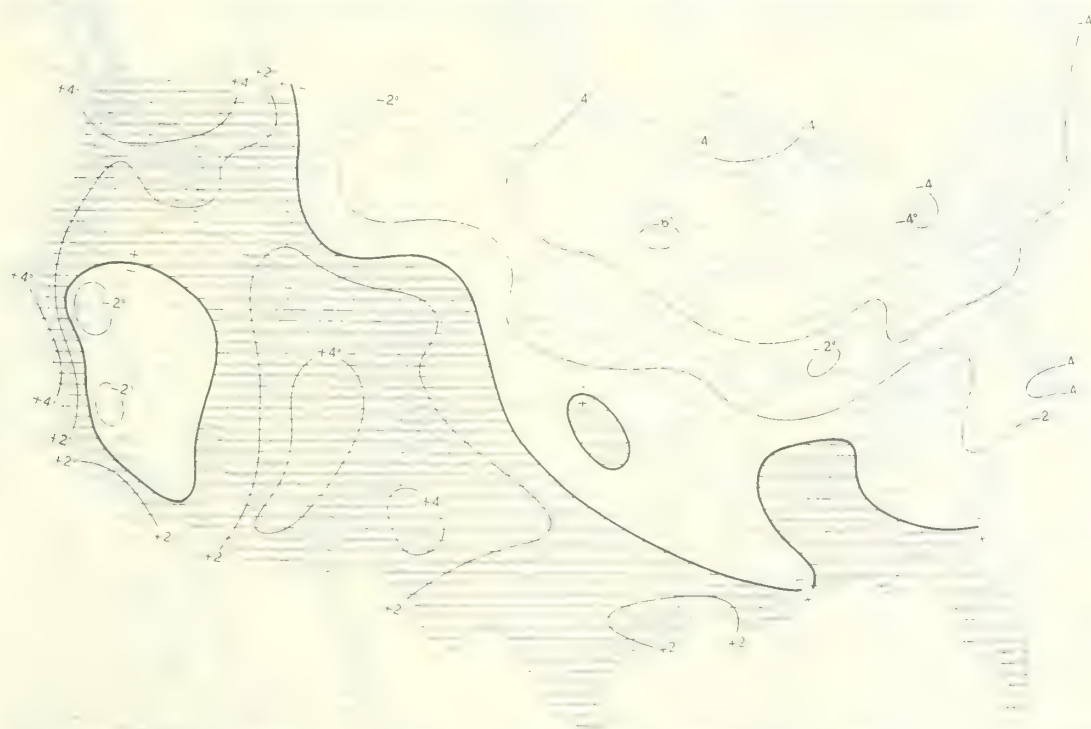
pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's.

DELATED DATA

1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	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Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, June 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), June 1958.

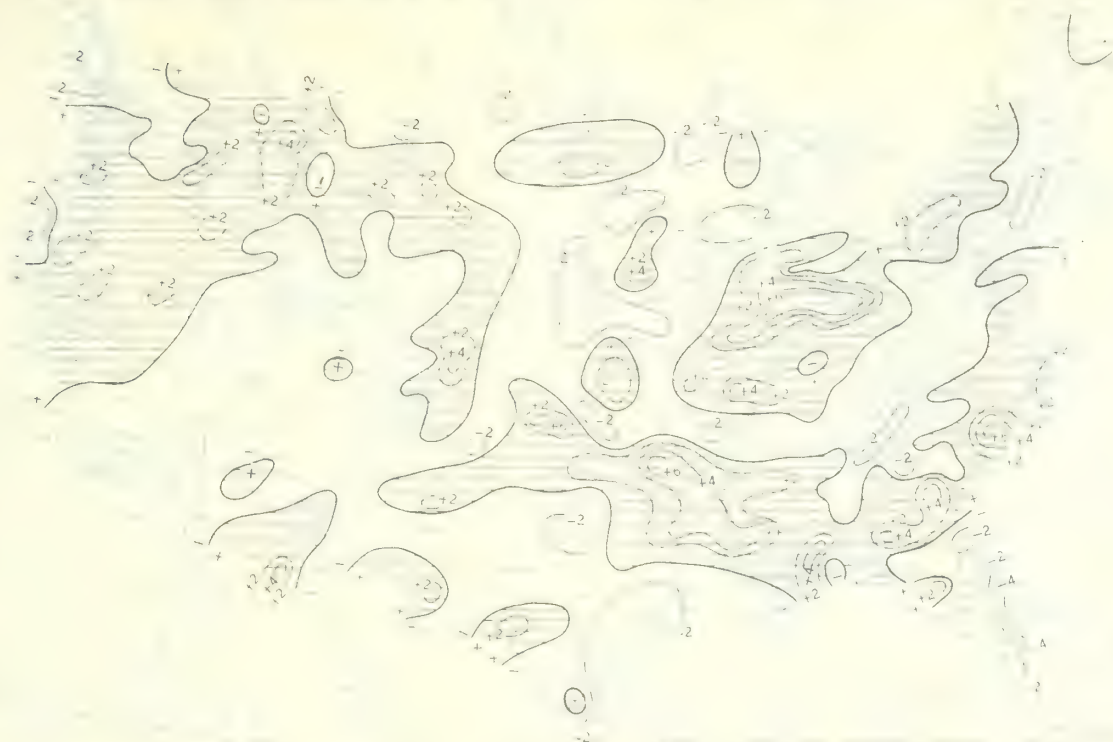
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), June 1958.



Chart III. A. Departure of Precipitation from Normal (Inches), June 1958.



B. Percentage of Normal Precipitation, June 1958.



Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, June 1958.

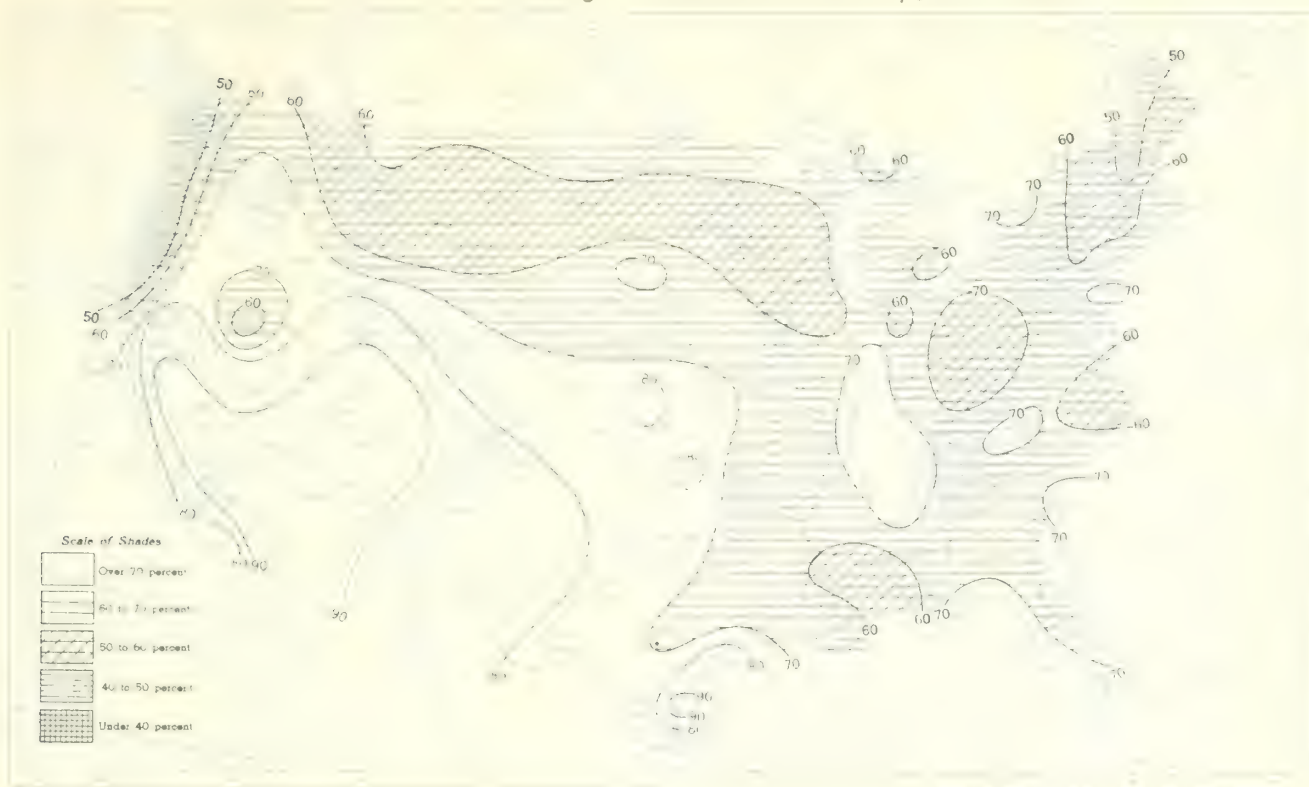


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, June 1958.

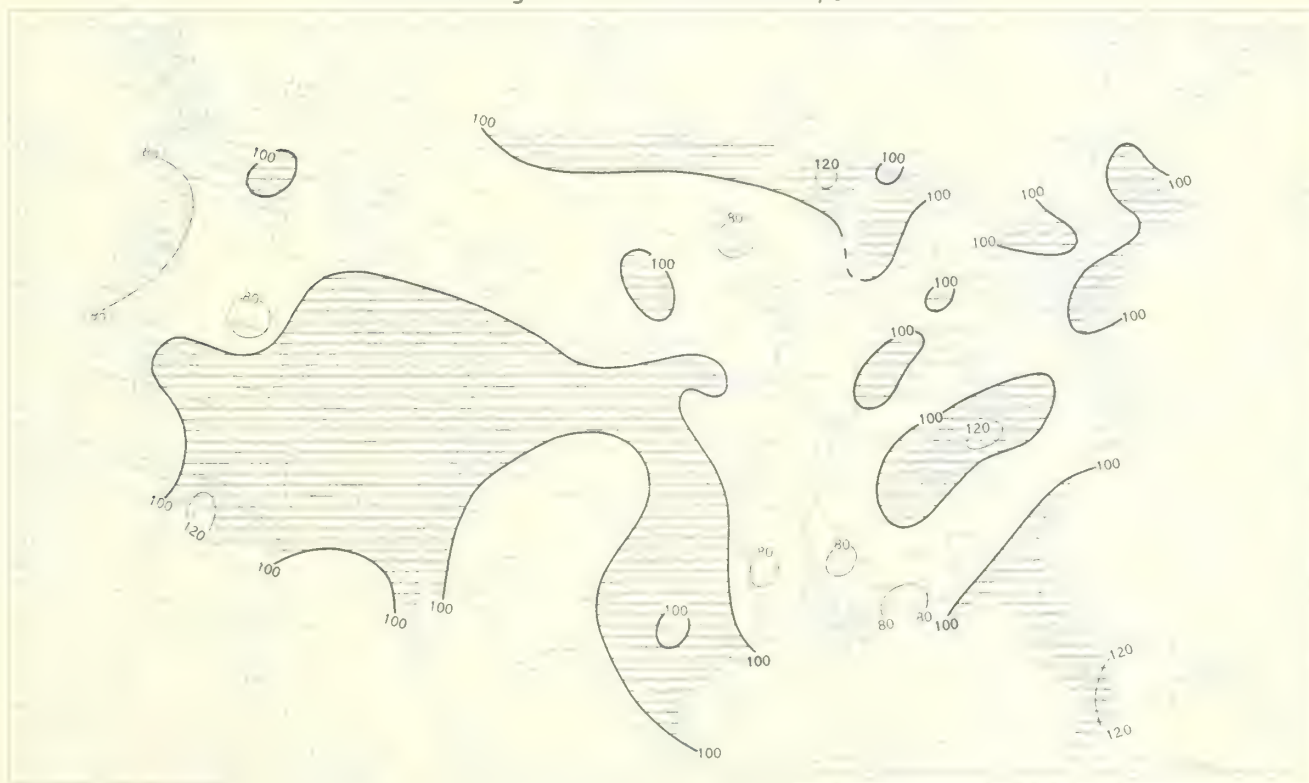


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, June 1958.



B. Percentage of Normal Sunshine, June 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, June 1958. Inset: Percentage of Mean Daily Solar Radiation, June 1958. (Mean based on period 1951-55.)



Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. The inset shows the percentage of the mean based on the period 1951-55.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, June 1958.

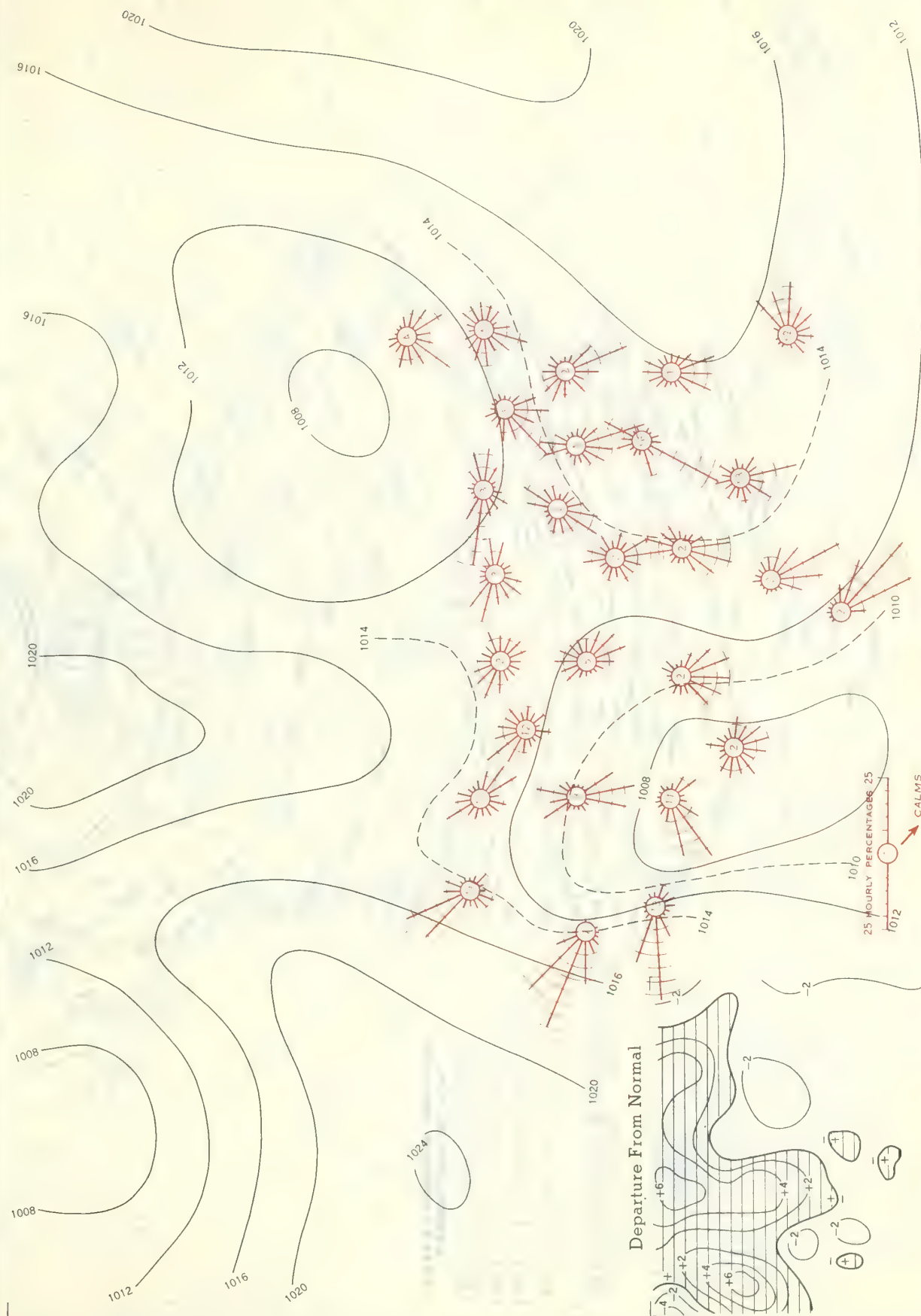


Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, June 1958.

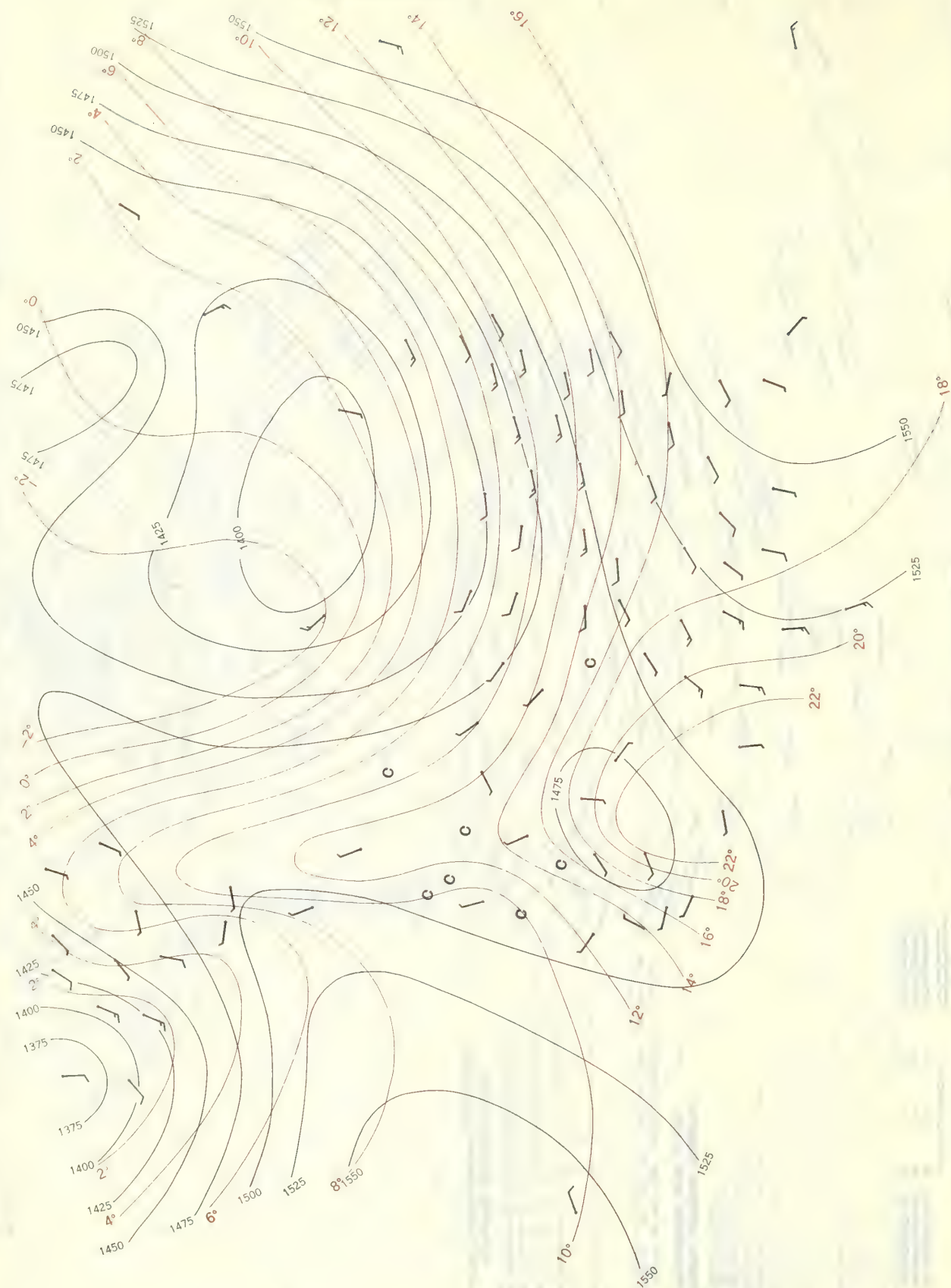


Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, June 1958. Inset: Departure of Average Pressure (mb.) from Normal, June 1958.



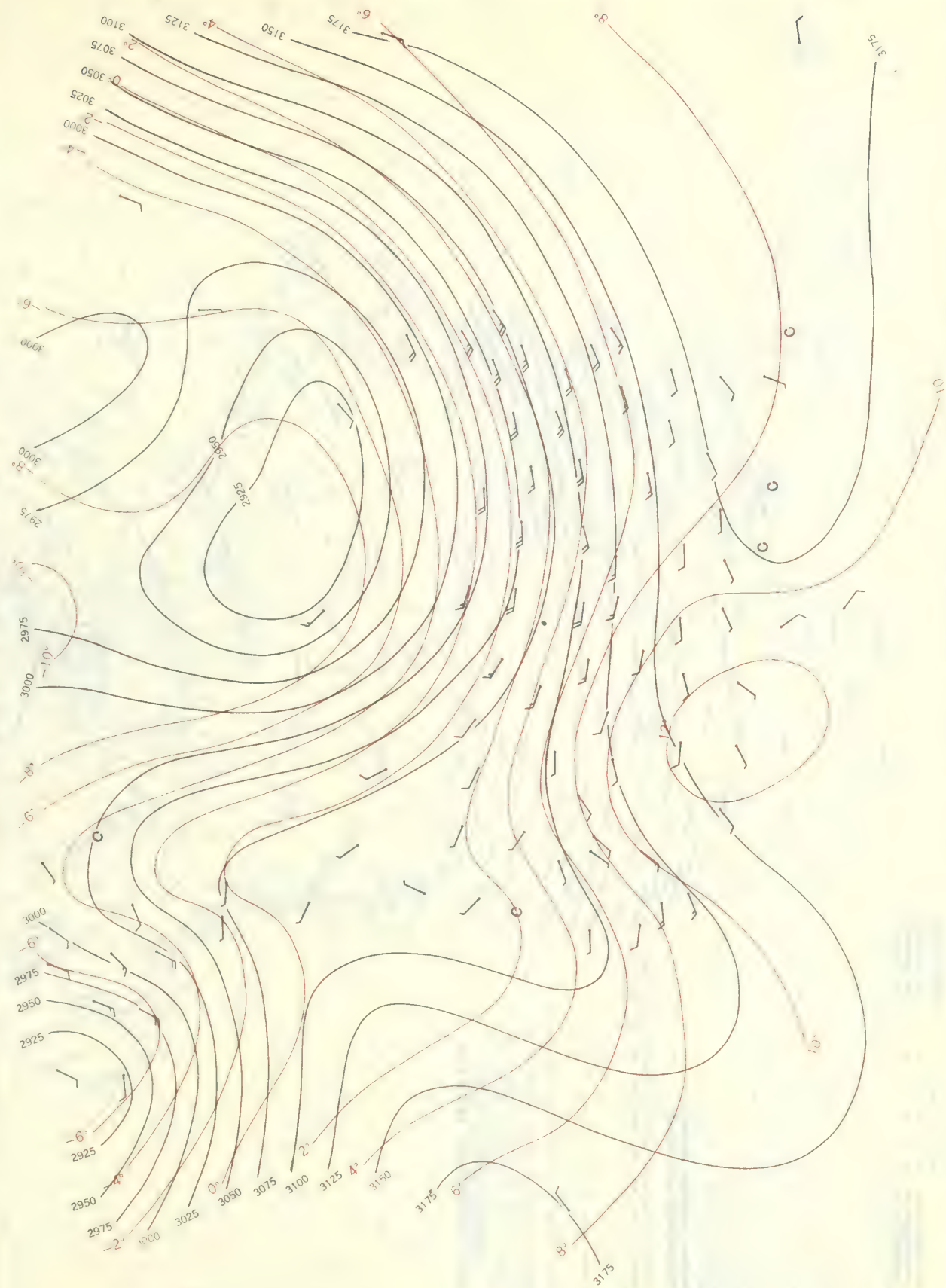
Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, June 1958. Average Height and Temperature, and Resultant Winds.



Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

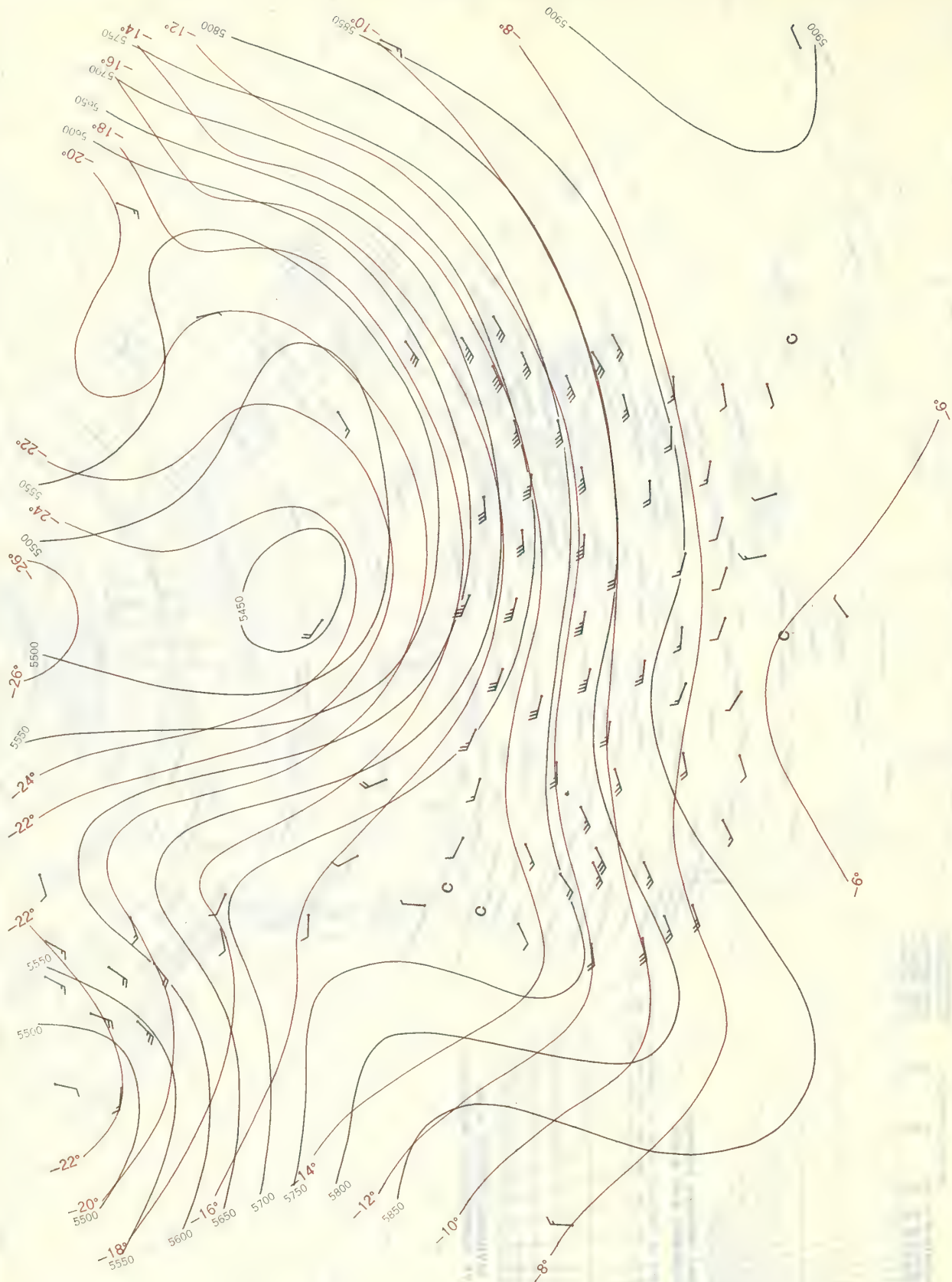
Chart XIII. 700-mb. Surface, 1200 GMT, June 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

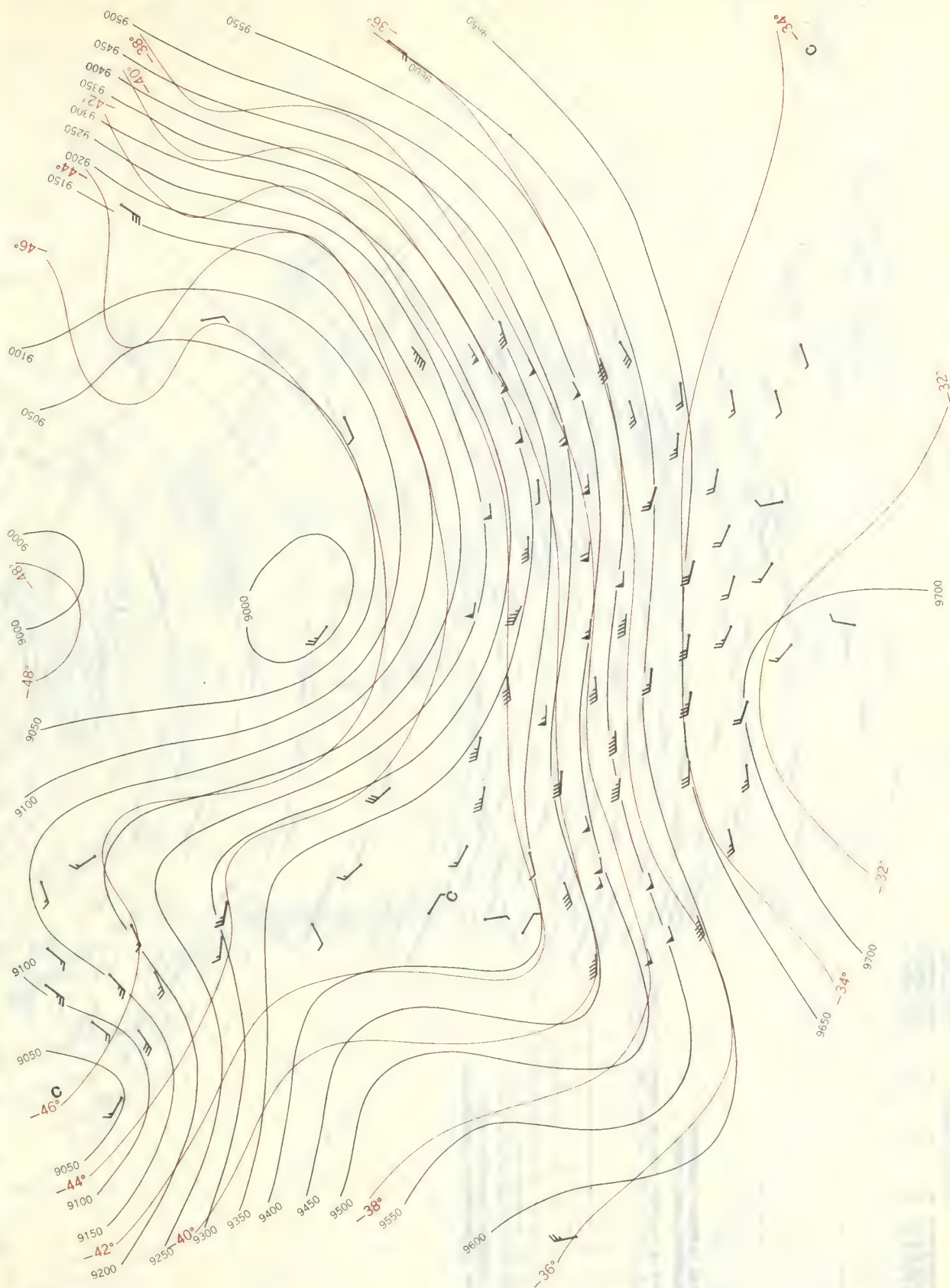
JUNE 1958

Chart XIV. 500-mb. Surface, 1200 GMT, June 1958. Average Height and Temperature, and Resultant Winds.



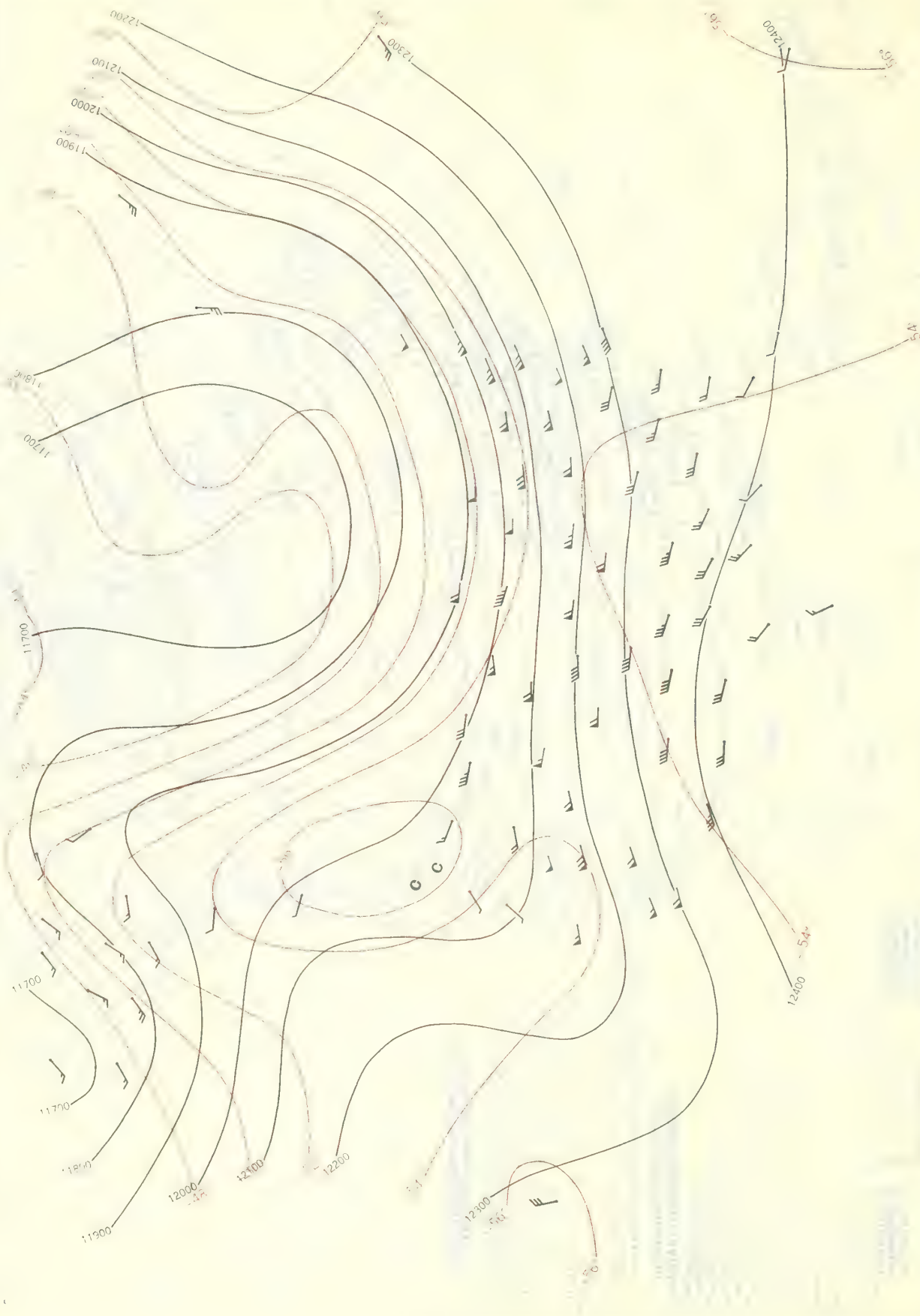
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, June 1958. Average Height and Temperature, and Resultant Winds.

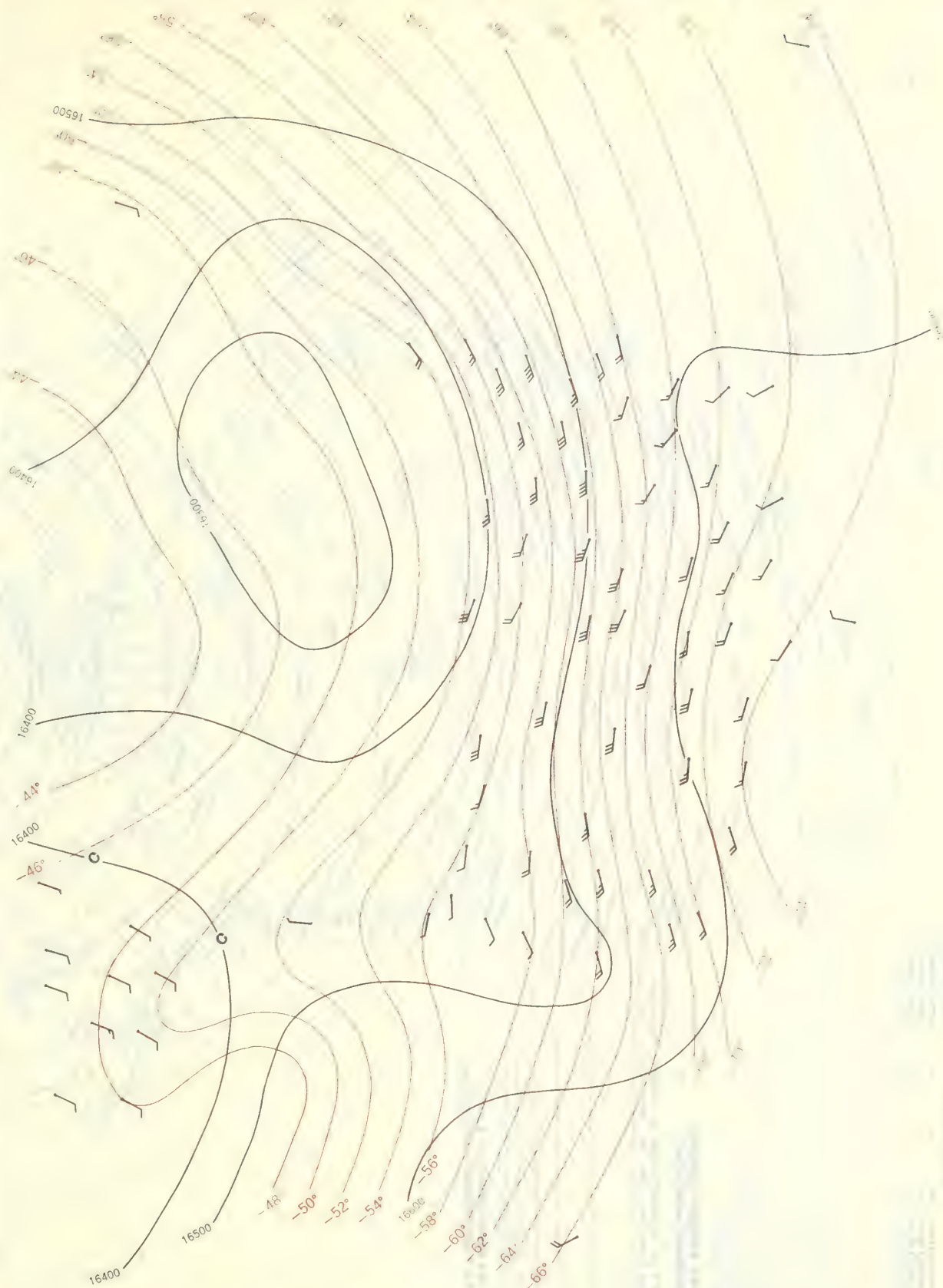


See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, June 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.



See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE

SINCLAIR WEEKS, Secretary

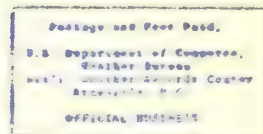
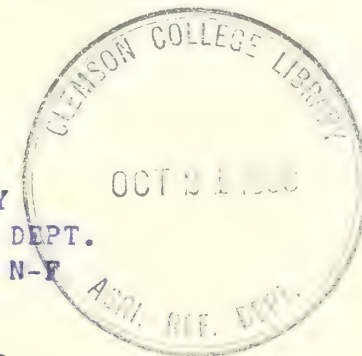
WEATHER BUREAU

F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

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JULY 1958

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 7

JULY 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

Unusually cool, cloudy, and wet, with numerous severe local storms from the central Great Plains eastward was the main weather feature of July. The heavy rainfall caused widespread minor flooding and some notable flash floods. Variable rainfall in the extreme North Central Interior replenished soil moisture in some sections, but was too light in others. The weather was about normal east of the Appalachians and in the South, except for near record-breaking rainfall along parts of the north Atlantic coast. A heat wave occurred in the Far Southwest about midmonth and in the Pacific Northwest near the end.

TEMPERATURE.--July was unusually cool in middle and northern portions of the Central Interior and warmer than usual in the Southwest and along the Pacific coast.

The warm weather in the Southwest reached record-breaking levels during the first half of the month. On the 11th the mercury rose to 118° and 111° at Phoenix and Tucson, Ariz., respectively, temperatures which equaled the alltime highs at both places. The month was the warmest July on record at Roswell, N. M., where the monthly average was 83.1°, and 110° on the 14th equaled the alltime high for the station. At Yuma, Ariz., 116° or higher on 5 consecutive days set a station record, and the daily maximum was 105° or higher on all except 2 days during the month.

This month was among the warmest Julys in the Pacific Northwest. The monthly averages for Seattle, Wash., and Eugene, Oreg., 70.7° and 71.0°, respectively, were new records there. Nine days with 90° or more at Portland, Oreg., equaled the record set there in 1911. San Francisco reported an unusually warm July.

The month was among the coolest July's on record in north-central areas and northern Nevada. In the latter area, Winnemucca's average for the month 68.1°, was the lowest since 1903. East of the Continental Divide, a monthly average of 76.5° at St. Louis, Mo., and 71.8° at Grand Island, Nebr., were the second lowest on record at those stations. The subnormal monthly averages were mainly due to low daytime maxima, prevented from rising to normal levels by cloudy skies, rather than to any unusual cool snaps. However, during the third week when most stations in north central areas recorded their lowest temperatures, Green Bay, Wis., reported a new July low of 42.1° on the 20th, and scattered frosts occurred in the lowlands of northern and central Wisconsin with a low of 35° at Danbury on the 16th. Monthly maxima were unusually low and failed to reach 90° at many northern stations. The temperature never reached 90° at Des Moines, Iowa, Minneapolis, Minn., and Dayton, Ohio, at this latter station for the first time on record.

PRECIPITATION.--The month was unusually wet in a large area extending from the middle Mississippi Basin eastward over the Ohio River Basin, Northwestward to Montana, and southwestward to the Texas Panhandle. Other wet areas included central and northern interior sections of California, extreme southern Arizona, northern portions of Minnesota

and Wisconsin, and some small areas in the South and East. From the east-central Great Plains through the Ohio Valley measurable rain fell on 15 to 20 days, twice the usual number, and total rainfall for the month ranged up to 500 percent of normal. Extreme totals for the month ranged up to over 20 inches in Missouri, more than 15 inches in Iowa, Oklahoma, Kansas, and Indiana, and over 12 inches in Illinois, Nebraska, Arkansas, Louisiana, and Wisconsin. This was the wettest July on record at most points in Southwestern Iowa, and heavy rains early in the month caused disastrous floods along the Nishnabotna, Racoon, and Des Moines Rivers, and about midmonth in parts of the Iowa River Basin. The floods were blamed for 18 deaths and millions of dollars damage. Disastrous flash floods also occurred in north-central Illinois about midmonth, Ottawa reporting nearly 9 inches of rain in 11 hours on the 14th.

Indiana reported the wettest July in central and southern portions of the State since the beginning of statewide records in 1887. Also, that combined totals for June and July averaged 19.50 inches in the central portion of the State and 16.10 inches in the southern portion, which in both sections is 4 to 6 inches more than for any other June-July period on record. Illinois reported the wettest June-July period for the central portion of that State in a least 50 years.

A great number of stations in the Mid-continent area, particularly from the central Great Plains to the Appalachians measured their greatest July rainfall in the last 50-years or more. Among these were Peoria, Ill., Indianapolis, Ind., Des Moines, Iowa, Topeka, Kans., Lexington, Ky., Columbia and Springfield, Mo., Columbus and Toledo, Ohio, and Parkersburg, W. Va.

Heavy rains in central and northern California fell during unusually intense thunderstorm activity. Mount Shasta observed thunderstorms on 10 days, the most for July during a record dating back to 1888. Fort Bidwell measured its greatest precipitation for July during a record dating back to 1867. On the North Atlantic coast a number of stations had their wettest July in many years. Among these was Baltimore, Md., with a total of 11.50 inches, the most since 1871.

At the end of the month soil moisture for growing crops east of the Rockies generally was ample to excessive. Main exceptions were dry spots in the extreme North Central Interior, the southern low Rolling Plains of Texas, and some counties in south-central Virginia. West of the Continental Divide, rainfall for the month was above normal in some areas and below in others, but dry weather prevailed over most of the area the latter part of the month. Dry weather and a hot spell created a high fire hazard in the Pacific Northwest.

DESTRUCTIVE STORMS AND UNUSUAL WEATHER PHENOMENA.--Severe storms were blamed for about 78 deaths, 167 injuries, and well over \$50 million damage. Perhaps as much as 75 percent of the total damage occurred in the Great Plains, with losses exceeding \$1 million in each of the States of Kansas, Ne-

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

JULY 1958

braska, Montana, South Dakota, Colorado, and Texas. More than one-half of the month's storm losses occurred in Kansas. A remarkable outbreak of violent storms over the eastern third of this State during the night of the 10th and 11th were respon-

sible for 4 deaths, 12 injuries, and losses estimated at nearly \$30 million, a few million of which were caused by floods resulting from torrential rains.

CONDENSED CLIMATOLOGICAL SUMMARY

JULY 1958

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Frisco City	99	31	Opelika	48	2+	Pushmataha	15.78	Dadeville	3.51
Arizona	Dateland	125	9	Maverick	31	21	San Rafael Rch	7.02	6 Stations	.00
Arkansas	Hot Springs 1NNE	100	18	Gravette	55	8	Ft. Smith Water Plant	13.58	Fulton	1.74
California	Cow Creek	125	12+	White Mtn 2	18	1	Dunsmuir	3.23	238 Stations	.00
Colorado	Holly	106	1	Fraser	24	28+	Cheyenne Wells	9.35	2 Stations	.00
Connecticut	2 Stations	94	3+	Coventry	41	21+	Falls Village	7.86	North Branford	2.04
Delaware	Dover	102	31	3 Stations	57	18	Milford	8.40	Newark University Farm	3.38
Florida	2 Stations	106	29+	Milligan	59	1	Naples	13.40	New Smyrna Beach 4N	.69
Georgia	6 Stations	100	30+	Blairsville Exp. Sta.	49	1	Neel Gap	24.13	Savannah Beach	1.90
Idaho	Grand View	107	29	Grouse	27	13	Island Park Dam	3.44	Ola 55	.00
Illinois	Cairo WB City	96	20	Stockton 1N	48	21	Ottawa	14.85	Galena	2.86
Indiana	2 Stations	96	26+	Valparaiso Wtr. Wks.	50	17	Petersburg 61 Bridge	17.60	Gary Disposal Pl.	3.43
Iowa	do	96	1	Cherokee 3N	41	16	Audubon	19.78	Peterson 1W	1.70
Kansas	do	105	19+	McDonald	47	7	Atchison	17.87	Achilles	3.15
Kentucky	Heidelberg Lock 14	98	19	Benton 2	50	2+	Vanburen	16.54	Middlesboro	2.54
Louisiana	2 Stations	100	31+	Covington	60	1	Slidell	13.33	Ponchartrain Causeway	1.31
Maine	do	94	2	2 Stations	36	5	Rockland	8.84	Presque Isle	3.43
Maryland	Ocean City	99	16	do	50	4+	Takoma Park Miss Ave	12.66	Bentley Springs 1WNW	2.87
Massachusetts	Shelburne Falls	96	2	West Cummington	40	18	Hardwick	7.68	New Bedford	1.84
Michigan	5 Stations	92	25+	Grand Marais CAA AP	31	20	Ishpeming	7.56	Higgins Lake	.97
Minnesota	6 Stations	95	22+	3 Stations	38	16+	Duluth	8.51	2 Stations	1.19
Mississippi	Monticello 1SW	100	19	2 Stations	56	2+	Swan Lake	17.10	Hatchez	1.39
Missouri	3 Stations	98	29+	5 Stations	52	13+	Paris	21.49	Dexter	3.56
Montana	Wolf Point 4ESE	102	22	3 Stations	26	24+	Mystic Lake	4.83	2 Stations	.50
Nebraska	Benkelman	104	14	Harrison	38	5	Bennet	14.42	Mitchell 5E	1.41
Nevada	Overton	117	13	3 Stations	31	3+	Sheldon	1.19	12 Stations	.00
New Hampshire	Franklin Falls Dam	96	2	Fabyan	35	18	Dublin	9.31	West Lebanon	2.24
New Jersey	Newton	98	3	2 Stations	45	21+	Atlantic City WB AP	10.92	New Milford	2.78
New Mexico	Bitter Lake WL Refuge	112	4+	do	29	23+	Des Moines	7.56	Farmington 4NE	.07
New York	2 Stations	97	27+	Old Forge 2SW	37	21	Grafton 1NW	8.04	Cold Brook	.95
North Carolina	do	100	31	Bluff	40	26	Highlands	17.39	Ocracoke	.15
North Dakota	do	100	23	Powers Lake 1N	32	7	Belfield	7.35	Columbus	.70
Ohio	Milford	96	5	Chippewa Lake	46	20	Hamilton	14.25	Dorset 2E	3.74
Oklahoma	Blackwell 1W	106	24	Kenton	51	6	Miami	18.81	Tribbey	1.41
Oregon	Arlington	109	28	The Poplars	29	2+	Modoc Orchard	2.96	20 Stations	.00
Pennsylvania	3 Stations	96	3+	Coudersport 3W	36	21	Greenville	13.13	Newburg 3W	1.77
Rhode Island	Greenville	91	1	Kingston	48	18	Providence WB Airport	6.29	Woonsocket	2.82
South Carolina	2 Stations	100	30+	2 Stations	55	1	Sassafras Mountain	13.60	Sullivan's Island	2.11
South Dakota	Cheyenne Agency	99	23	Deerfield 5NW	29	6+	Lead	8.78	Webster	1.01
Tennessee	2 Stations	98	21+	Mountain City 2	49	1	Haw Knob	12.69	Pulaski	2.00
Texas	do	116	15+	Dalhart CAA AP	50	6	Dumas	10.84	Several Stations	.00
Utah	Hite	109	12+	Strawberry Res	27	1	Zion NP	1.42	16 Stations	.00
Vermont	2 Stations	94	26+	Somerset	35	18	Dorset 1S	9.83	Rutland	1.54
Virginia	4 Stations	98	31+	2 Stations	48	1	Cootes Store	12.09	Farmville	1.19
Washington	Richland	110	29	Blue Glacier	34	1	Disautel 9NE	4.38	40 Stations	.00
West Virginia	Williamson	96	29+	2 Stations	44	4+	Pickens 1	14.37	Martinsburg CAA AP	3.62
Wisconsin	3 Stations	95	1	Laona 4SSW	34	17	Winter GNNW	12.69	Milwaukee Mt. Mary C	.79
Wyoming	2 Stations	97	7+	Marshall 7SW	22	28	Rochelle 3E	7.17	Evanston 1E	.00
Puerto Rico	do	95	21+	San Lorenzo Espino	58	21	San Lorenzo Espino	24.17	Calero Camp	1.74

+ And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

JULY 1958

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind		No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days 90° F or above	Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	Snow, Sleet	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Ft.	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	In.	In.	In.	In.	In.	In.	In.	M	M	M	0-4	5-10	11-15	16-20	21-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100-104	105-109	110-114	115-119	120-124	125-129	130-134	135-139	140-144	145-149	150-154	155-159	160-164	165-169	170-174	175-179	180-184	185-189	190-194	195-199	200-204	205-209	210-214	215-219	220-224	225-229	230-234	235-239	240-244	245-249	250-254	255-259	260-264	265-269	270-274	275-279	280-284	285-289	290-294	295-299	300-304	305-309	310-314	315-319	320-324	325-329	330-334	335-339	340-344	345-349	350-354	355-359	360-364	365-369	370-374	375-379	380-384	385-389	390-394	395-399	400-404	405-409	410-414	415-419	420-424	425-429	430-434	435-439	440-444	445-449	450-454	455-459	460-464	465-469	470-474	475-479	480-484	485-489	490-494	495-499	500-504	505-509	510-514	515-519	520-524	525-529	530-534	535-539	540-544	545-549	550-554	555-559	560-564	565-569	570-574	575-579	580-584	585-589	590-594	595-599	600-604	605-609	610-614	615-619	620-624	625-629	630-634	635-639	640-644	645-649	650-654	655-659	660-664	665-669	670-674	675-679	680-684	685-689	690-694	695-699	700-704	705-709	710-714	715-719	720-724	725-729	730-734	735-739	740-744	745-749	750-754	755-759	760-764	765-769	770-774	775-779	780-784	785-789	790-794	795-799	800-804	805-809	810-814	815-819	820-824	825-829	830-834	835-839	840-844	845-849	850-854	855-859	860-864	865-869	870-874	875-879	880-884	885-889	890-894	895-899	900-904	905-909	910-914	915-919	920-924	925-929	930-934	935-939	940-944	945-949	950-954	955-959	960-964	965-969	970-974	975-979	980-984	985-989	990-994	995-999	1000-1004	1005-1009	1010-1014	1015-1019	1020-1024	1025-1029	1030-1034	1035-1039	1040-1044	1045-1049	1050-1054	1055-1059	1060-1064	1065-1069	1070-1074	1075-1079	1080-1084	1085-1089	1090-1094	1095-1099	1100-1104	1105-1109	1110-1114	1115-1119	1120-1124	1125-1129	1130-1134	1135-1139	1140-1144	1145-1149	1150-1154	1155-1159	1160-1164	1165-1169	1170-1174	1175-1179	1180-1184	1185-1189	1190-1194	1195-1199	1200-1204	1205-1209	1210-1214	1215-1219	1220-1224	1225-1229	1230-1234	1235-1239	1240-1244	1245-1249	1250-1254	1255-1259	1260-1264	1265-1269	1270-1274	1275-1279	1280-1284	1285-1289	1290-1294	1295-1299	1300-1304	1305-1309	1310-1314	1315-1319	1320-1324	1325-1329	1330-1334	1335-1339	1340-1344	1345-1349	1350-1354	1355-1359	1360-1364	1365-1369	1370-1374	1375-1379	1380-1384	1385-1389	1390-1394	1395-1399	1400-1404	1405-1409	1410-1414	1415-1419	1420-1424	1425-1429	1430-1434	1435-1439	1440-1444	1445-1449	1450-1454	1455-1459	1460-1464	1465-1469	1470-1474	1475-1479	1480-1484	1485-1489	1490-1494	1495-1499	1500-1504	1505-1509	1510-1514	1515-1519	1520-1524	1525-1529	1530-1534	1535-1539	1540-1544	1545-1549	1550-1554	1555-1559	1560-1564	1565-1569	1570-1574	1575-1579	1580-1584	1585-1589	1590-1594	1595-1599	1600-1604	1605-1609	1610-1614	1615-1619	1620-1624	1625-1629	1630-1634	1635-1639	1640-1644	1645-1649	1650-1654	1655-1659	1660-1664	1665-1669	1670-1674	1675-1679	1680-1684	1685-1689	1690-1694	1695-1699	1700-1704	1705-1709	1710-1714	1715-1719	1720-1724	1725-1729	1730-1734	1735-1739	1740-1744	1745-1749	1750-1754	1755-1759	1760-1764	1765-1769	1770-1774	1775-1779	1780-1784	1785-1789	1790-1794	1795-1799	1800-1804	1805-1809	1810-1814	1815-1819	1820-1824	1825-1829	1830-1834	1835-1839	1840-1844	1845-1849	1850-1854	1855-1859	1860-1864	1865-1869	1870-1874	1875-1879	1880-1884	1885-1889	1890-1894	1895-1899	1900-1904	1905-1909	1910-1914	1915-1919	1920-1924	1925-1929	1930-1934	1935-1939	1940-1944	1945-1949	1950-1954	1955-1959	1960-1964	1965-1969	1970-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019	2020-2024	2025-2029	2030-2034	2035-2039	2040-2044	2045-2049	2050-2054	2055-2059	2060-2064	2065-2069	2070-2074	2075-2079	2080-2084	2085-2089	2090-2094	2095-2099	2100-2104	2105-2109	2110-2114	2115-2119	2120-2124	2125-2129	2130-2134	2135-2139	2140-2144	2145-2149	2150-2154	2155-2159	2160-2164	2165-2169	2170-2174	2175-2179	2180-2184	2185-2189	2190-2194	2195-2199	2200-2204	2205-2209	2210-2214	2215-2219	2220-2224	2225-2229	2230-2234	2235-2239	2240-2244	2245-2249	2250-2254	2255-2259	2260-2264	2265-2269	2270-2274	2275-2279	2280-2284	2285-2289	2290-2294	2295-2299	2300-2304	2305-2309	2310-2314	2315-2319	2320-2324	2325-2329	2330-2334	2335-2339	2340-2344	2345-2349	2350-2354	2355-2359	2360-2364	2365-2369	2370-2374	2375-2379	2380-2384	2385-2389	2390-2394	2395-2399	2400-2404	2405-2409	2410-2414	2415-2419	2420-2424	2425-2429	2430-2434	2435-2439	2440-2444	2445-2449	2450-2454	2455-2459	2460-2464	2465-2469	2470-2474	2475-2479	2480-2484	2485-2489	2490-2494	2495-2499	2500-2504	2505-2509	2510-2514	2515-2519	2520-2524	2525-2529	2530-2534	2535-2539	2540-2544	2545-2549	2550-2554	2555-2559	2560-2564	2565-2569	2570-2574	2575-2579	2580-2584	2585-2589	2590-2594	2595-2599	2600-2604	2605-2609	2610-2614	2615-2619	2620-2624	2625-2629	2630-2634	2635-2639	2640-2644	2645-2649	2650-2654	2655-2659	2660-2664	2665-2669	2670-2674	2675-2679	2680-2684	2685-2689	2690-2694	2695-2699	2700-2704	2705-2709	2710-2714	2715-2719	2720-2724	2725-2729	2730-2734	2735-2739	2740-2744	2745-2749	2750-2754	2755-2759	2760-2764	2765-2769	2770-2774	2775-2779	2780-2784	2785-2789	2790-2794	2795-2799	2800-2804	2805-2809	2810-2814	2815-2819	2820-2824	2825-2829	2830-2834	2835-2839	2840-2844	2845-2849	2850-2854	2855-2859	2860-2864	2865-2869	2870-2874	2875-2879	2880-2884	2885-2889	2890-2894	2895-2899	2900-2904	2905-2909	2910-2914	2915-2919	2920-2924	2925-2929	2930-2934	2935-2939	2940-2944	2945-2949	2950-2954	2955-2959	2960-2964	2965-2969	2970-2974	2975-2979	2980-2984	2985-2989	2990-2994	2995-2999	3000-3004	3005-3009	3010-3014	3015-3019	3020-3024	3025-3029	3030-3034	3035-3039	3040-3044	3045-3049	3050-3054	3055-3059	3060-3064	3065-3069	3070-3074	3075-3079	3080-3084	3085-3089	3090-3094	3095-3099	3100-3104	3105-3109	3110-3114	3115-3119	3120-3124	3125-3129	3130-3134	3135-3139	3140-3144	3145-3149	3150-3154	3155-3159	3160-3164	3165-3169	3170-3174	3175-3179	3180-3184	3185-3189	3190-3194	3195-3199	3200-3204	3205-3209	3210-3214	3215-3219	3220-3224	3225-3229	3230-3234	3235-3239	3240-3244	3245-3249	3250-3254	3255-3259	3260-3264	3265-3269	3270-3274	3275-3279	3280-3284	3285-3289	3290-3294	3295-3299	3300-3304	3305-3309	3310-3314	3315-3319	3320-3324	3325-3329	3330-3334	3335-3339	3340-3344	3345-3349	3350-3354	3355-3359	3360-3364	3365-3369	3370-3374	3375-3379	3380-3384	3385-3389	3390-3394	3395-3399	3400-3404	3405-3409	3410-3414	3415-3419	3420-3424	3425-3429	3430-3434	3435-3439	3440-3444	3445-3449	3450-3454	3455-3459	3460-3464	3465-3469	3470-3474	3475-3479	3480-3484	3485-3489	3490-3494	3495-3499	3500-3504	3505-3509	3510-3514	3515-3519	3520-3524	3525-3529	3530-3534	3535-3539	3540-3544	3545-3549	3550-3554	3555-3559	3560-3564	3565-3569	3570-3574	3575-3579	3580-3584	3585-3589	3590-3594	3595-3599	3600-3604	3605-3609	3610-3614	3615-3619	3620-3624	3625-3629	3630-3634	3635-3639	3640-3644	3645-3649	3650-3654	3655-3659	3660-3664	3665-3669	3670-3674	3675-3679	3680-3684	3685-3689	3690-3694	3695-3699	3700-3704	3705-3709	3710-3714	3715-3719	3720-3724	3725-3729	3730-3734	3735-3739	3740-3744	3745-3749	3750-3754	3755-3759	3760-3764	3765-3769	3770-3774	3775-3779	3780-3784	3785-3789	3790-3794	3795-3799	3800-3804	3805-3809	

CLIMATOLOGICAL DATA

JULY 1958

State and station	Pressure										Temperature										Precipitation										Wind										No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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See footnotes at end of table.

CLIMATOLOGICAL DATA

JULY 1958

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind		No of days (sunrise to sunset)												
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F. or above	No. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine			
																				In.	In.											In.	In.	In.
NEW HAMPSHIRE (Cont'd.)																																		
Mt. Washington	6262	808.4	-----	55	44	49.3	0.0	62	27	32	17	0	1	--	93	9.79	3.43	1.63	20	3	0.0	0	25.0	W	#88	WNW	19	0	5	26	9.0	22		
NEW JERSEY																																		
Atlantic City	69	-----	-----	85	69	76.9	---	93	3	60	18	6	0	69	80	10.92	---	3.85	16	10	---	0	9.0	S	---	---	3	16	12	7.0	---			
Atlantic City (U)	8	1013.2	-----	80	69	74.6	1.0	90	3	62	13	1	0	---	---	9.57	5.79	3.06	15	---	0	0	11.6	---	33	SW	31	---	---	---	70			
Newark	11	1013.6	1015.0	85	69	76.7	1.4	96	2	63	20	11	0	66	72	4.53	-.33	1.34	17	10	0	0	8.5	SSW	#24	WNW	8	2	12	17	7.4	---		
Trenton (U)	56	1007.8	1014.5	85	69	76.8	1.5	93	2	61	10	7	0	---	---	4.73	.67	1.31	16	14	0	0	7.8	---	25	W	19	2	15	14	7.1	50		
NEW MEXICO																																		
Albuquerque	5310	849.0	1009.3	93	66	79.6	.6	101	12	59	7	26	0	45	36	.14	-1.29	.06	5	3	0	0	8.8	S	---	---	15	15	11	5	4.0	75		
Clayton	4969	-----	-----	85	59	72.0	-2.1	96	13	45	5	7	0	---	---	5.15	2.59	2.46	16	17	0	0	---	---	---	---	10	11	10	5.4	---			
Raton	6379	808.3	1012.9	85	53	69.1	.5	96	14	49	6	7	0	---	---	2.38	-.12	.93	12	21	0	0	---	---	---	---	6	16	9	5.6	---			
Roswell	3612	891.6	1009.5	98	68	83.1	4.1	110	14	58	7	27	0	56	47	.66	-1.15	.42	7	8	0	0	12.6	---	44	NW	31	15	11	5	3.9	---		
NEW YORK																																		
Albany	277	1010.2	1014.2	81	62	71.7	.3	94	1	48	21	2	0	62	75	4.47	1.17	1.33	14	5	0	0	6.7	S	32	W	19	4	7	20	7.6	57		
Binghamton	1590	956.8	-----	76	60	68.3	-.8	86	26	50	21	2	0	60	78	4.91	1.09	1.55	18	6	0	0	7.2	WSW	37	NW	16	2	8	21	7.8	50		
Buffalo	693	987.0	1015.0	80	62	71.3	.7	90	27	52	21	1	0	61	72	1.49	-.94	.40	14	3	0	0	8.8	SSW	38	SW	29	5	9	17	7.1	63		
New York (U)	10	1014.2	-----	83	70	76.1	1.5	90	31	63	22	4	0	---	---	4.33	.09	1.16	15	6	0	0	10.8	S	52	W	8	2	14	15	7.2	53		
New York	19	1013.0	1015.2	84	70	76.9	1.0	94	2	62	6	8	0	65	72	3.89	-.23	1.14	15	7	0	0	10.9	NE	35	NW	16	3	13	15	7.2	---		
Rochester	543	995.4	1014.6	80	61	70.4	-.8	87	15	50	21	0	0	62	76	4.17	1.08	.85	15	6	0	0	9.3	SW	42	W	14	5	10	16	6.9	69		
Schenectady	217	-----	-----	82	64	72.7	0	92	1	52	21	2	0	---	---	4.09	.52	.89	15	3	0	0	---	---	---	---	16	10	5	4.1	---			
Syracuse	424	993.5	1015.2	80	62	70.5	-2.0	88	15	50	21	0	0	61	74	3.63	.37	.83	17	6	0	0	8.7	WNW	40	NW	19	4	10	17	7.0	55		
NORTH CAROLINA																																		
Asheville (U)	2203	940.1	-----	84	65	74.4	.6	90	28	58	2	1	0	---	---	3.91	-.59	1.39	16	12	0	0	6.1	---	20	NW	17	3	11	17	6.9	53		
Cape Hatteras (R)	9	1017.2	1017.9	86	74	80.4	1.9	90	30	60	1	1	0	74	83	.45	-6.03	.45	2	4	0	0	11.0	SSW	---	---	11	9	11	5.1	81			
Charlotte	725	990.0	1017.7	89	70	79.5	.9	96	28	62	1	15	0	70	81	6.21	1.54	1.87	14	13	0	0	6.2	SSW	45	NW	18	5	9	17	6.9	61		
Greensboro	891	986.4	1018.0	88	69	78.4	1.2	94	28	62	2	9	0	70	80	5.28	.34	1.62	14	11	0	0	7.8	SW	28	WSW	13	5	11	15	6.7	74		
Raleigh	433	1003.9	1017.6	89	70	79.4	.9	95	31	61	1	13	0	71	82	4.82	-.63	1.33	15	16	0	0	5.7	S	#23	SSW	8	7	8	16	6.5	80		
Wilmington	30	1017.2	-----	91	73	82.1	2.1	96	29	61	1	24	0	---	---	4.34	-3.82	1.21	9	9	0	0	11.8	---	40	W	21	6	18	7	6.1	83		
Winston-Salem	967	982.9	1017.9	88	69	78.9	1.4	95	28	65	2	12	0	69	77	4.21	-.36	1.95	12	10	0	0	9.8	SW	#40	WSW	18	6	11	14	6.7	---		
NORTH DAKOTA																																		
Bismarck	1650	953.6	1013.3	80	53	66.7	-5.4	100	23	45	16	5	0	53	66	1.74	-.59	.96	9	6	0	0	9.4	WNW	40	NW	1	8	11	12	6.1	61		
Devils Lake (U)	1471	959.7	-----	76	54	65.4	-3.9	95	23	46	15	2	0	---	---	3.07	.40	1.46	15	6	0	0	7.1	NW	22	NW	23	11	10	10	5.2	66		
Fargo	895	979.3	1013.5	78	57	67.4	-3.9	93	23	49	30	2	0	56	72	5.74	3.43	2.86	9	8	0	0	10.5	S	56	W	26	10	11	5.5	62			
Williston (U)	1877	946.5	1013.2	78	54	66.1	-4.8	94	22	42	7	3	0	49	57	.81	-1.32	.34	9	2	0	0	6.8	SW	30	W	14	9	12	10	5.7	61		
OHIO																																		
Akron	1210	978.3	1016.3	81	63	71.8	-.6	89	4	52	20	0	0	63	78	11.43	7.23	4.18	17	11	0	0	8.6	S	---	---	2	7	22	7.9	---			
Cincinnati Obs.	761	-----	-----	84	66	75.2	-1.4	92	4	60	20	3	0	---	---	7.74	4.04	2.31	13	11	0	0	4.8	---	20	S	15	---	---	---	62			
Cincinnati	869	983.9	1015.6	83	65	74.3	-.8	91	4	58	8	1	0	64	78	7.54	3.79	1.92	16	12	0	0	8.2	SSW	24	WNW	31	4	5	22	7.9	---		
Cleveland (U)	787	987.1	1014.8	82	65	73.5	-.2	91	2	59	20	4	0	64	74	4.82	1.78	1.17	15	6	0	0	11.0	S	35	S	15	2	11	18	7.8	45		
Columbus (U)	724	-----	-----	83	67	74.7	-1.1	92	5	60	20	4	0	---	---	10.07	6.54	2.47	16	11	0	0	---	---	---	---	---	---	---	---	---			
Columbus	815	986.2	1016.0	84	65	74.4	0	93	4	59	26	4	0	65	77	9.46	5.61	2.18	15	12	0	0	6.4	SSW	27	W	11	2	8	21	7.8	41		
Dayton	1002	979.4	1015.3	81	65	73.4	-1.6	89	4	60	20	0	0	65	79	6.34	3.05	1.23	16	11	0	0	8.7	SSW	48	SW	15	3	7	21	7.8	48		
Sandusky (U)	603	992.9	-----	82	66	73.6	-1.0	93	2	60	20	3	0	---	---	5.68	2.23	1.40	13	8	0	0	6.5	---	28	SW	1	3	18	10	6.1	67		
Toledo	676	989.8	1015.1	82	63	72.2	-.9	91	2	52	20	2	0	63	76	6.71	4.06	1.63	12	11	0	0	9.4	WSW	42	W	5	3	9	19	7.5	61		
Youngstown	1178	974.0	1016.2	80	62	71.0	-1.3	88	2	51	9	0	0	63	78	7.41	3.25	1.59	17	8	0	0	9.3	WSW	#29	SW	15	3	7	21	7.7	---		
OKLAHOMA																																		
Oklahoma City	1280	970.2	1012.7	90	70	80.1	-2.0	97	19	57	8	22	0	69	72	2.02	-.13	.95	12	9	0	0	13.8	S	63	SE	14	15	14	2	4.2	78		
Tulsa	672	989.2	1013.0	91	72	81.4	-.7	98	24	61	8	22	0	70	71	3.33	.64	1.03	9	8	0	0	10.0	S	31	NW	26	7	16	8	5.6	71		
OREGON																																		
Astoria	8	1015.9	1016.5	71	55	62.6	1.8	90	27	47	14	1	0	57	83	-.09	-.98	.05	5	0	0	0	8.4	SW	#20	WNW	27	5	11	15	6.4	---		
Burns (U)	4140	873.4	1013.5	85	53	68.8	-1.0	97	28	45	4	16	0	43	43	1.13	-.88	.87	6	4	0	0	---	---	---	---	2	5	4	2.5	---			
Charlton	361	1001.4	1014.7	86	55	71.0	4.4	104	27	45	14	12	0	---	---	.7	-.26	T	0	0	0	0	8.5	---	#25									

CLIMATOLOGICAL DATA

JULY 1958

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind			No. of days (sunrise to sunset)					
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	Snow, Sleet	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine			
Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	#	°F.	%	In.	In.	In.	In.	In.	In.	In.	M. p. h.	M. p. h.	M. p. h.	0-3	4-7	8-10	%							
TENNESSEE (Cont'd.)																																	
Oak Ridge	905	984.9	-----	88	70	78.7	2.0	94	30+	62	1	12	0	---	---	4.46	-0.88	1.02	17	14	0.0	0	4.2	---	*38	---	16	6	11	14	6.7	---	
TEXAS																																	
Abilene	1759	952.6	1011.7	96	73	84.5	1.4	103	31	63	8	28	0	65	56	3.12	1.07	1.32	4	4	.0	0	12.7	S	42	W	20	18	8	5	3.5	80	
Amarillo	3590	888.3	1010.5	91	65	78.0	.2	99	14+	58	7	20	0	61	61	6.16	3.80	1.60	12	17	.0	0	12.5	S	56	W	12	12	16	3	4.2	85	
Austin	615	993.2	1014.7	96	74	85.1	1.0	100	30	69	7	30	0	71	68	3.42	1.24	2.73	5	4	.0	0	10.4	S	26	SE	1	16	12	3	4.0	84	
Brownsville	16	1011.9	1014.5	92	76	83.7	-.1	94	31+	73	3+	27	0	76	80	1.68	-.29	1.05	6	1	.0	0	12.3	SSE	28	SE	2	19	6	4	1.78	---	
Corpus Christi	41	1013.5	1014.5	94	77	85.5	1.7	96	31+	73	11	27	0	75	76	1.13	-1.13	1.01	3	3	.0	0	12.6	SSE	30	SE	14	11	17	3	4.2	91	
Dallas	487	995.6	1013.9	96	76	85.8	.3	103	25	68	8+	28	0	69	61	1.97	.00	1.22	4	4	.0	0	12.4	S	40	NE	5	18	10	3	3.3	84	
Del Rio (U)	957	-----	-----	96	75	85.6	.9	102	30	69	7	31	0	---	---	1.33	-1.25	.33	3	2	.0	0	---	---	---	---	---	---	---	---	---	---	
El Paso	3920	884.9	1009.4	97	72	84.5	3.2	106	12	64	7	25	0	50	35	1.36	.04	1.16	7	8	.0	0	11.8	SSE	40	E	13+	17	8	6	3.5	80	
Fort Worth	544	993.2	1013.7	96	76	85.7	.6	102	31+	67	8	28	0	69	61	3.69	1.80	3.22	4	4	.0	0	13.3	S	*35	NNW	23+	19	9	3	3.1	---	
Galveston (U)	7	-----	-----	89	81	84.6	1.6	90	28+	70	3	6	0	---	---	1.69	-3.11	.67	4	---	.0	0	12.7	---	25	S	15+	---	---	---	---	87	
Galveston	5	1013.9	1016.1	91	81	85.9	2.6	93	28	74	7	25	0	76	72	.73	-3.98	.41	7	5	.0	0	14.3	S	---	---	---	11	14	6	4.7	---	
Houston (U)	41	1010.2	-----	94	77	85.6	1.8	98	29	71	2	29	0	---	---	1.94	-2.51	1.12	7	8	.0	0	8.9	S	27	SE	2	14	15	2	4.2	87	
Houston	50	1012.5	1015.2	94	76	84.8	2.2	99	22	72	8+	27	0	74	76	6.04	1.25	1.89	10	10	.0	0	10.2	SSE	---	---	---	11	16	4	4.6	---	
Laredo	500	998.0	1013.0	100	76	88.3	.3	105	30	71	7	31	0	69	60	1.76	.36	1.58	3	2	.0	0	17.4	SSE	*30	SE	27+	21	7	3	2.8	---	
Lubbock	3243	901.8	1010.2	94	68	80.9	1.6	107	14	58	8	25	0	61	57	2.65	.76	1.78	5	12	.0	0	13.8	S	*48	WSW	12	18	10	3	3.3	---	
Midland	2854	914.3	1010.8	97	71	84.2	2.2	106	13	62	7	29	0	61	50	.89	-.92	.35	5	11	.0	0	11.8	SSE	*29	ENE	5	20	8	3	2.9	---	
Port Arthur	16	1014.9	1016.4	92	76	84.0	2.3	97	29	70	18+	27	0	75	78	5.65	-1.15	2.52	13	10	.0	0	9.7	S	37	E	23	8	14	9	5.5	59	
San Angelo	1903	946.2	1011.9	95	73	83.9	1.2	102	31+	62	7	29	0	64	54	.21	-1.36	.11	2	3	.0	0	13.8	S	*35	E	22	9	2	2	2.8	---	
San Antonio	792	989.2	1013.9	95	74	84.6	.4	100	31	68	8	30	0	70	67	7.39	5.48	6.97	5	3	.0	0	10.8	SSE	25	SW	14	13	16	2	3.8	81	
Victoria	110	1009.8	1014.5	95	75	85.1	.3	98	30+	70	8	30	0	72	68	.88	-3.25	.74	4	4	.0	0	10.1	SE	*49	SSE	23	14	14	3	4.0	---	
Waco	500	995.3	1013.6	96	75	85.8	.8	100	31+	70	8	30	0	70	63	.68	-1.26	.66	3	3	.0	0	12.6	S	*29	NNW	5	17	11	3	3.3	---	
Wichita Falls	1020	976.3	1011.9	95	73	84.0	.2	102	31+	62	8	25	0	66	60	3.35	1.16	1.32	8	7	.0	0	11.4	S	*46	NNW	23	17	11	3	3.2	---	
UTAH																																	
Milford	5028	843.9	1011.2	93	52	72.5	-1.5	104	12	45	19+	22	0	---	---	.01	-.76	.01	1	2	.0	0	---	---	---	---	---	21	6	4	2.9	---	
Salt Lake City	4220	866.2	1010.2	91	58	74.9	-1.7	100	9+	51	1	19	0	40	31	.05	-.56	.05	1	1	.0	0	9.2	SSE	29	SE	23	22	6	3	2.3	91	
VERMONT																																	
Burlington	331	999.2	1013.7	78	59	68.9	-1.5	90	1	50	18+	1	0	59	72	3.89	.14	.77	11	2	.0	0	7.9	S	23	S	26	3	9	19	7.5	55	
VIRGINIA																																	
Lynchburg	947	983.4	-----	87	68	77.3	1.3	94	31	63	1	10	0	---	---	4.72	.57	.95	15	11	.0	0	7.2	---	26	SE	13	4	11	16	7.1	58	
Norfolk	26	1015.7	1016.9	91	73	81.7	4.2	98	31	67	1	22	0	71	76	6.27	.22	2.26	15	14	.0	0	9.8	SW	39	W	8	6	14	11	6.2	50	
Richmond	162	1010.9	1016.9	90	71	80.2	2.7	96	31	66	1	21	0	71	78	3.22	-2.37	.85	13	10	.0	0	7.3	SSW	26	SE	27+	3	16	12	6.7	80	
Roanoke	1174	975.7	1017.2	89	68	78.1	2.2	96	31	62	1	13	0	67	75	6.21	1.30	1.75	16	10	.0	0	7.0	SW	---	---	---	5	10	16	6.9	---	
WASHINGTON																																	
Olympia	190	1008.1	1015.3	84	54	69.1	6.3	99	27	47	14	9	0	53	63	T	-.72	T	0	0	.0	0	6.0	SW	*28	SSW	12	16	13	2	3.5	---	
Seattle (U)	14	-----	-----	82	59	70.7	5.1	98	28	56	21+	6	0	---	---	T	-.52	T	0	0	.0	0	7.3	---	22	S	29	16	14	1	3.3	80	
Seattle	14	1013.8	-----	---	---	---	---	---	---	---	---	---	---	53	57	---	---	---	---	---	---	---	7.5	NNW	---	---	---	---	---	---	---	---	---
Seattle-Tacoma	386	1001.0	1015.1	81	56	68.8	4.9	97	28	50	1	7	0	54	54	T	-.58	T	0	0	.0	0	10.3	SW	*23	SW	12	16	14	1	3.2	---	
Spokane	2357	944.8	1012.8	87	59	73.0	3.4	95	11	47	1	15	0	48	45	1.15	.79	.61	6	6	.0	0	7.6	ENE	29	SW	12	21	5	5	3.2	86	
Stamper Pass (R)	3958	881.1	1017.3	73	52	62.8	5.9	87	28+	39	13	0	0	---	---	-.26	-1.03	.17	3	6	.0	0	---	---	---	---	---	21	9	1	2.7	---	
Tatoosh (R)	101	1012.9	1015.8	62	53	57.1	1.6	79	15	49	6	0	0	54	91	.24	-1.75	.10	8	0	.0	0	13.8	SSW	33	S	29	8	7	16	6.3	48	
Walla Walla (U)	949	975.6	1010.5	93	65	78.8	2.6	105	28	52	1	24	0	---	---	.08	1.20	.08	1	2	.0	0	6.6	---	23	N	5	24	4	3	1.9	94	
Yakima	1061	973.6	1011.8	93	57	75.0	3.6	104	28	44	1	23	0	48	43	.22	-.04	.10	3	4	.0	0	5.6	NNW	*30	NNW	22	22	8	1	2.3	---	
WEST VIRGINIA																																	
Charleston	950	981.5	1016.3	85	67	76.0	.6	91	4	60	1	4	0	67	78	9.36	3.91	2.17	18	13	.0	0	5.6	SW	29	WNW	11	1	12	18	7.6	---	
Elkins	1970	-----	-----	80	60	70.1	-.1	88	4	53	4+	0	0	---	---	9.30	4.16	1.52	21	10	.0	0	4.8	---	23	WNW	28+	0	9	22	8.1	---	
Huntington (U)	565	-----	-----	86	69	77.4	.5	93	28+	62	1	8	0	---	---	7.15	2.33	1.49	15	---	.0	0	---	---	---	---	---	---	---	---	---	---	---
Parkersburg (U)	615	-----	-----	85	67	75.6	-.1	93	4	61	20	3	0	---	---	12.05	7.89	3.16	18	14	.0	0	4.8	---	25	W	6	5	10	16	7.3	51	
WISCONSIN																																	
Green Bay	689	990.9	1013.5	79	55	67.2	-2.7	89	26	42	20	0	0	60	73	2.97	-.52	.92	11	3	.0	0	8.8	SW	40	SW	1	8	15	10	5.8	65	
La Crosse	652	989.2	1013.7	81	60	70.5	-3.5	90	1	50	17	0	0	59	66	2.08	-.23	1.15	5	3	.0	0	8.0	S	*30	S	1	7	9	15	6.5	---	
Madison	857	979.3	1014.1	82	57	69.4	-3.6	92	26	45	17	1	0	57	68	1.69	-1.61	.66	7	2	.0	0	7.3	W	33	SW	9	4	11	16	6.8	60	
Milwaukee	672	998.8	1014.6	79	60	69.2	-2.1	87	26	52	21+	0	0	59	71	1.02	-1.41	.42	9	0	.0	0	8.3	WNW	40	SW	1	9	4	18	6.5	70	
WYOMING																																	
Casper	5322	838.5	1012.2	81	51	66.3	-4.8	93	12	43	5	2	0	46	56	.96	-.21	.33	12	16	.0	0	7.8	SW	*40	WNW	25+	15	9	7	4.4	63	
Cheyenne	6131	814.1	1013.5	78	51	64.5	-3.6	90	28	71	24	1	0	48	62	3.85	1.89	1.16	22	18	.0	0	11.3	WNW	40	SW	1	8	12	11	5.6	63	

HEATING DEGREE DAYS

(Base 65°)

JULY 1958

State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				KANSAS				NEW YORK				TEXAS (Cont'd.)			
Birmingham	0	0	U	Concordia (U)	0	0	0	Albany	8	8	0	Midland	0	0	
Mobile	0	0	0	Dodge City	2	2	0	Binghamton	23	23	16	Port Arthur	0	0	0
Montgomery	0	0	0	Goodland	0	0	0	Buffalo	2	2	16	San Angelo	0	0	0
ARIZONA				Topeka	0	0	0	New York (U)	0	0	0	San Antonio	0	0	0
Flagstaff	27	27	49	Wichita	0	0	0	New York	0	0	0	Victoria	0	0	0
Phoenix (U)	0	0	0	KENTUCKY				Rochester	5	5	9	Waco	0	0	0
Phoenix	0	0	0	Lexington	0	0	0	Schenectady	1	1	0	Wichita Falls	0	0	0
Prescott	0	0	U	Louisville	0	0	0	Syracuse	7	7	0	UTAH			
Tucson	0	0	0	Pikeville (U)	0	0	0	NORTH CAROLINA				Milford	0	0	0
Winslow	0	0	0	LOUISIANA				Asheville (U)	0	0	0	Salt Lake City	0	0	0
Yuma	0	0	0	Baton Rouge	0	0	0	Cape Hatteras (R)	0	0	0	VERMONT			
ARKANSAS				Lake Charles	0	0	0	Charlotte	0	0	0	Burlington	20	20	19
Ft. Smith	0	0	0	New Orleans (U)	0	0	0	Greensboro	0	0	0	VIRGINIA			
Little Rock	0	0	0	New Orleans	0	0	0	Raleigh	0	0	0	Lynchburg	0	0	0
Texarkana	0	0	0	Shreveport	0	0	0	Wilmington	0	0	0	Norfolk	0	0	0
CALIFORNIA				MAINE				Winston-Salem	0	0	0	Richmond	0	0	0
Bakersfield	0	0	U	Caribou	88	88	85	NORTH DAKOTA				Roanoke	0	0	0
Bishop	0	0	0	Greenville (U)	87	87	15	Bismarck	49	49	29	WASHINGTON			
Blue Canyon	43	43	36	Portland	28	28	15	Devils Lake (U)	71	71	47	Olympia	7	7	91
Burbank	0	0	0	MARYLAND				Fargo	38	38	25	Seattle (U)	1	1	49
Eureka (U)	227	227	267	Baltimore (U)	0	0	0	Grand Forks	50	50	0	Seattle-Tacoma	15	15	75
Fresno	0	0	0	Baltimore	0	0	0	Pembina	48	48	0	Spokane	5	5	17
Los Angeles (U)	0	0	0	Frederick	0	0	0	Williston (U)	55	55	29	Stampede Pass (R)	109	109	251
Los Angeles	0	0	31	MASSACHUSETTS				OHIO				Tatoosh Island (R)	243	243	295
Mt. Shasta (R)	25	25	37	Blue Hill Obs. (R)	16	16	0	Akron	5	5	0	Walla Walla (U)	0	0	0
Oakland	31	31	84	Boston	4	4	0	Cincinnati (U)	0	0	0	Yakima	3	3	0
Red Bluff	0	0	0	Nantucket	15	15	22	Cincinnati	0	0	0	WEST VIRGINIA			
Sacramento (U)	0	0	0	Pittsfield	32	32	25	Cleveland	0	0	0	Charleston	0	0	0
Sacramento	0	0	0	MICHIGAN				Dayton	2	2	0	Elkins	2	2	9
Sandberg (R)	11	11	0	Alpena (U)	63	63	50	Sandusky (U)	1	1	0	Huntington (U)	0	0	0
San Diego	0	0	11	Detroit	1	1	0	Toledo	4	4	0	Parkersburg (U)	0	0	0
San Francisco (U)	178	178	189	Detroit (Willow Run)	1	1	0	Youngstown	1	1	0	WISCONSIN			
San Francisco	25	25	144	East Lansing (U)	1	1	0	OKLAHOMA				Green Bay	27	27	32
San Jose	4	4	7	Escanaba (U)	44	44	62	Oklahoma City	0	0	0	La Crosse	4	4	11
Santa Maria	83	83	98	Grand Rapids	5	5	14	Tulsa	0	0	0	Madison (U)	10	10	10
COLORADO				Marquette (U)	91	91	69	OREGON				Madison	12	12	13
Alamosa	33	33	64	Muskegon	9	9	26	Astoria	86	86	138	Milwaukee	13	13	20
Colorado Springs	16	16	8	S. Ste. Marie	141	141	109	Burns (U)	25	25	10	WYOMING			
Denver	14	14	5	MINNESOTA				Eugene	0	0	33	Casper	37	37	13
Grand Junction	0	0	0	Duluth (U)	124	124	66	Meacham	42	42	88	Cheyenne	61	61	33
Pueblo	1	1	U	Duluth	98	98	56	Medford	1	1	0	Lander	51	51	7
CONNECTICUT				Internat. Falls	87	87	70	Portland (U)	0	0	13	Sheridan	56	56	27
Bridgeport	0	0	0	Minneapolis	12	12	8	Portland	3	3	25	ALASKA			
Hartford	3	3	0	Rochester	40	40	24	Roseburg	0	0	0	Anchorage	260	260	239
New Haven	3	3	0	St. Cloud	36	36	32	Salem	0	0	21	Annette	104	104	262
DELAWARE				MISSISSIPPI				Sexton Summit (R)	22	22	88	Barrow	820	820	784
Wilmington	U	0	U	Jackson	0	0	0	PENNSYLVANIA				Barter Island	602	602	
DIST. OF COLUMBIA				Meridian	0	0	0	Allentown	0	0	0	Bethel	285	285	326
Washington (U)	0	0	U	Vicksburg (U)	0	0	0	Harrisburg	0	0	0	Cold Bay	482	482	
Washington	0	0	U	MISSOURI				Philadelphia (U)	0	0	0	Cordova	355	355	363
FLORIDA				Columbia	0	0	0	Philadelphia	0	0	0	Fairbanks	102	102	149
Apalachicola (U)	0	0	0	Kansas City	0	0	0	Pittsburg (U)	0	0	0	Juneau	230	230	319
Daytona Beach	0	0	0	St. Joseph	0	0	0	Pittsburgh	4	4	0	King Salmon	313	313	
Fort Myers	0	0	0	St. Louis (U)	0	0	0	Reading (U)	0	0	0	Kotzebue	224	224	384
Jacksonville	0	0	0	St. Louis	0	0	0	Scranton	0	0	0	McGrath	224	224	206
Key West	0	0	0	Springfield	2	2	0	Williamsport	1	1	0	Nome	346	346	477
Miami (U)	0	0	0	MONTANA				RHODE ISLAND				St. Paul	580	580	592
Miami	0	0	0	Billings	44	44	8	Block Island	6	6	6	Yakutat	299	299	381
Miami Beach	0	0	0	Glasgow	42	42	14	Providence	2	2	0				
Orlando	0	0	0	Great Falls	106	106	24	SOUTH CAROLINA							
Pensacola (U)	0	0	0	Havre (U)	60	60	20	Charleston (U)	0	0	0				
Tallahassee	0	0	0	Helena	99	99	36	Charleston	0	0	0				
Tampa	0	0	0	Kalispell	59	59	47	Columbia	0	0	0				
West Palm Beach	0	0	0	Miles City	26	26	6	Florence	0	0	0				
GEORGIA				Missoula	47	47	22	Greenville	0	0	0				
Athens	0	0	0	NEBRASKA				Spartanburg	0	0	0				
Atlanta	0	0	0	Grand Island	0	0	0	SOUTH DAKOTA							
Augusta	0	0	0	Lincoln (U)	0	0	0	Buron	14	14	10				
Columbus	0	0	0	Norfolk	0	0	0	Pierre	8	8	0				
Macon	0	0	0	North Platte	3	3	7	Rapid City	30	30	32				
ROME	0	0	0	Omaha	0	0	0	Sioux Falls	7	7	16				
Savannah	0	0	0	Scottsbluff	5	5	0	TENNESSEE							
IDAHO				Valentine	6	6	11	Bristol	0	0	0				
Boise	2	2	0	NEVADA				Chattanooga	0	0	0				
Lewiston	2	2	0	Elko	21	21	6	Knoxville	0	0	0				
Pocatello	7	7	0	Ely	34	34	22	Memphis	0	0	0				
ILLINOIS				Las Vegas	0	0	0	Nashville	0	0	0				
Cairo (U)	0	0	U	Reno	20	20	27	TEXAS							
Chicago	0	0	U	Tonopah	0	0	0	Abilene	0	0	0				
Chicago University	0	0	0	Winnemucca	16	16	0	Amarillo	0	0	0				
Moline	4	4	0	NEW HAMPSHIRE				Austin	0	0	0				
Peoria	1	1	U	Concord	21	21	11	Brownsville	0	0	0				
Springfield	2	2	U	Mt. Washington Obs.	480	480		Corpus Christi	0	0	0				
INDIANA				NEW JERSEY				Dallas	0	0	0				
Evansville	0	0	0	Atlantic City (U)	0	0	0	Del Rio (U)	0	0	0				
Ft. Wayne	1	1	0	Newark	0	0	0	El Paso	0	0	0				
Indianapolis	2	2	0	Trenton (U)	0	0	0	Ft. Worth	0	0	0				
South Bend	1	1	5	NEW MEXICO				Galveston (U)	0	0	0				
IOWA				Albuquerque	0	0	0	Galveston	0	0	0				
Burlington	2	2	0	Clayton	7	7	0	Houston (U)	0	0	0				
Des Moines	4	4	5	Roswell	0	0	0	Houston	0	0	0				
Dubuque	11	11	U					Laredo	0	0	0				
Sioux City	4	4	U					Lubbock	0	0	0				

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NEBRASKA Polk County	1	1-1:30 a.m.	4	*1		1	2	4	Hail	Hailstones 1/3 to 1/2 inch in diameter. Storm moved northeastward.
MINNESOTA Hibbing (18 miles north- northwest of), St. Louis County	1	3:10 a.m.	2		1	1		1	Tornado (suspected)	Tornado-like winds twisted and uprooted large (up to 24 inches in diameter) Norway pine trees near McCarthy Beach State Park. Boy camper killed by falling branch. Several lake cottages destroyed, many more damaged. Estimated 100,000 potential board feet of lumber crashed during storm. Storm moved southeastward.
MINNESOTA St. Louis and Carlton Counties	1	4 a.m.			0	0			Funnel aloft	Funnel clouds observed by police near Virginia and at Barnum.
IOWA Madison County	1	All day				2	3	1	Electrical	Lightning damaged 4 houses and some farm buildings. 2 men injured when struck by lightning.
ARIZONA Red Rock (3 miles south- east of), Pinal County	1	1 p.m.		*2			5	1	Wind	Strong winds damaged telephone lines and equipment. Storm moved northward.
NEBRASKA Lyman-Stegall area, Scotts Bluff County	1	3 p.m.	12	*1		Few	3	5	Hail	Hailstones size golf to tennis balls. Storm moved southeastward.
MINNESOTA Rochester (12 miles south of), Olmsted County	1	4 p.m.			0	0			Funnel aloft	Funnel cloud observed.
WYOMING Yoder and Hawk Springs, Goshen County	1	5-5:30 p.m.	15	*8			4	5	Hail	Storm moved eastward.
OKLAHOMA Texhoma, Texas County	1	5-5:30 p.m.	5	440	0	0	3	2	Tornado	Small tornado moved well house off its foundation, twisted TV aerial, and rolled stock rack across yard and scattered feed stack on 1 farmstead. Miscellaneous damage to other farmsteads also reported. Tornado moved northeastward.
FLORIDA Anna Maria Island, Manatee County	1	5:10 p.m.			0	0			Waterspouts	2 waterspouts sighted in Gulf of Mexico.
NEBRASKA Potter (north of), Cheyenne County	1	5:45- 10:45 p.m.	15	*5	0	1	2	6	Hail and tornado	Funnel observed, no damage from tornado. Hailstones up to 5 ounces in weight. Storm moved southeastward.
COLORADO Weld County	1	6:30 p.m.			0	0	3	3	Tornado (suspected)	In vicinity southeast of Platteville, 4 barns unroofed and granary moved into field. Wheat in windrows scattered, but standing grain undamaged. Tornado moved northward.
NEBRASKA Giltner to Auroa, Hamilton County	1	7:30-8 p.m.	5	*2			1	4	Hail	Hailstones small, but numerous. Storm moved eastward.
NEBRASKA Lodgepole (north of), Cheyenne County	1	8:45-11 p.m.	15	*5	0	0	5	5	Hail and tornado	Storm moved south-southeastward. Property damage by tornado.
NEBRASKA Sidney (3 miles north- west of), Cheyenne County	1	11 p.m.							Hail	Stones 3/4 inch in diameter.
IDAHO Caldwell area, Canyon County	1	Evening							Wind	High winds caused total power blackout in Caldwell and surrounding areas for 17 minutes.
NEBRASKA Chadron (9 miles south of), Dawes County	1	Evening			0	0	3	1	Tornado (suspected)	
NEBRASKA Avoca (near), Cass County	1	Night					4	1	Electrical	Large barn struck and burned, with pigs, machinery, and feed.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
IOWA Mahaska to Des Moines Counties	1					1	4	1	Electrical, wind, and rain	Lightning burned 2 barns, and wind and rain dam- aged other buildings and utilities.
NEBRASKA Arcadia (north- east of), Talley County	1		6	*1/2 -1			2	4	Hail and electrical	Crop damage by hail.
	1									Minor storms also reported in Ovid and Sedgwick areas, Colo.; in Harrison, Pottawattamie, and Shelby Counties, Iowa; and near Madrid and in southwestern Colfax County, Nebr.
IOWA West-central and south- western portions	1-2	11 p.m.- 3 a.m.				18			Rain	Rain of over 12 inches in some areas created flash floods that destroyed buildings and high- ways. Deaths from drowning. See General Sum- mary of River and Flood Conditions in this publication.
TEXAS Sunray, Moore County	2	1 a.m.			0	0			Tornado (suspected)	Moved southward.
SOUTH DAKOTA Spink County (southern portion)	2	8 a.m.	30	*5				5	Hail and wind	Worst damage east of Tulare. Hail size of marbles. Some field crops completely destroyed. Storm moved eastward.
MAINE Jonesboro, Jonesport, and Columbia Falls in Washington County	2	4 p.m.			0	0	3	4	Tornado, hail, and wind	Hail up to baseball size and irregularly shaped, some oblong, some nearly cubical, destroyed 11-acre strawberry crop, damaged other crops, broke windows, and pierced roofs. Tornado seen at Mason's Bay, off Jonesport. Huge apple trees jerked out, roots and all, and blown 60 feet away. Fisherman narrowly escaped funnel's path into bay, where it damaged a section of weir.
MONTANA Hingham (north of), Hill County	2	4 p.m.	10	*1			1	4	Hail	Largest hailstones 1/2 inch in diameter. Storm moved eastward.
MONTANA Volborg (12 miles north of), Custer County	2	4 p.m.	15	880			2	4	Hail	Largest stones 1/2 inch. Storm moved eastward mostly over range land.
MONTANA Columbus (southeast of), Still- water County	2	4:15 p.m.	15	*10			1	5	Hail	Hailstones up to 3/4 inch in diameter. Storm moved northeastward.
SOUTH DAKOTA Black Hills (northern portion)	2	4:15 p.m.					5		Hail and rain	Lead and Deadwood worst hit. Hail size of marbles to small oranges fell for 20 minutes, followed by torrential rain.
WASHINGTON Cascade Mountains and east	2	Afternoon -evening					4	4	Rain, hail, and electrical	Heavy rain damaged irrigation canals, roads, some crops, and flooded basement in Quincy. Grass fires started near Ephrata by lightning. Rain and hail damaged crops in some localities of Spokane Valley. Basements in a few low areas flooded, and several power outages occurred as result of lightning. Heavy rain damaged unharvested grain crops in Kittitas Valley. Heavy rain damaged irrigation ditches and flooded basements in Richland, Pasco, and other localities in lower Yakima Valley. Grass fires started by lightning in Franklin County.
MAINE Orono, Old Town, Bradley, and Stillwater, in Penobscot County	2	5 p.m.			0	0	4	1	Tornado, wind, and hail	Numerous trees felled with local power outages and main line supplying Old Town out. 2 buildings unroofed. Witnesses described storm's center as small tornado. Wind damage area nearly 1 mile wide by several miles long, but major damage in narrow path. Hail up to 1-1/4 inches in diameter fell.
MONTANA Billings, Yellowstone County	2	5 p.m.	75	*10	0	2	6	6	Tornado, hail, and electrical	3 funnel clouds observed. Hailstones up to 1-1/4 inches in diameter. Storm covered an area from Park City to Custer and began near Columbus. Several horses killed by lightning. Most property damage was within Billings city limits. Storm moved eastward.
MONTANA Hardin, Big Horn County	2	5 p.m.	50	*6			1		Hail and rain	Hailstones up to 2 inches accumulated to 4 inches maximum depth. \$500 damage from flash flooding. Considerable crop damage by hail. Storm moved southeastward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MAINE Franklin County	2	5-6 p.m.			0	0	4	2	Tornado, electrical, hail, and wind	Extensive damage in Livermore Falls, Wilton, and Farmington areas. Trees and utility lines down- ed. Evidence at Wilson Lake, Wilton, of tornado touching down briefly at 5:17 p.m., breaking pines up to 3 feet in diameter. Some lightning damage. Hail up to 1/2 inch in diameter.
KANSAS Shawnee County	2	7:10 p.m.			0	0			Funnel aloft	Appeared about 8 miles north of Topeka. It remained stationary several minutes then moved northeastward and dissipated.
NEBRASKA Wellfleet (near), Lincoln County	2	8 p.m.			0	0	1	1	Tornadoes	2 funnels touched ground briefly in open field.
MISSOURI Oak Dale, Shelby County	2	8:30 p.m.					4		Wind, electri- cal, rain, and hail	Several farm buildings and trees badly damaged.
NEBRASKA Cozad (near), Dawson County	2	11:35 p.m.			0	0	1	1	Tornadoes	2 funnels observed, touched ground briefly.
COLORADO Morgan, Logan, and Sedgwick Counties	2	Evening					4		Wind and rain	Strong windstorm accompanied by rain, extending from eastern Morgan County to Julesburg area did damage to TV towers, roofs, buildings, trees, etc. At Julesburg, movie screen de- stroyed at Drive-In with damage estimated at \$16,000. Storm moved northeastward.
MICHIGAN Southern portion	2	Evening				4	3		Electrical	Damage from lightning-set fires, 4 persons injured by lightning bolt near Kalamazoo.
NEBRASKA Ogallala and vicinity, Keith County	2	Night			0	5	3	1	Wind and tor- nado (sus- pected)	Car blown from highway and overturned, house damaged.
	2									Minor storms also reported in central upper Michigan; at Galt and Paris, Mo.; near Benkelman, Elgin, Hartington, and Plainview, and at Meadow Grove, Nebr.; and near Aline, Okla.
IOWA Webster City, Hamilton County	3	6 a.m.				2	4	1	Electrical	Lightning fire burned house; 2 firemen injured.
NORTH DAKOTA Fargo and Vicinity, Cass County	3	Morning					4	4	Rain	1.64 inches of rain in less than 1 hour. Many basements flooded. Some streets damaged. Fields flooded. Grain lodged.
NEBRASKA Gage and Johnson Counties	3	2 p.m.	35	Narrow	0	1	5	2	Tornado	Storm formed in Kansas and moved east-northeast- ward into Nebraska from southwestern Gage County to 7 miles southwest of Tecumseh.
NEBRASKA Scottsbluff (15 miles north of), Scotts Bluff County	3	2:55 p.m.	Short	Narrow	0	0	1	1	Tornado	Reported over sparsely settled range country.
KANSAS Coffee County	3	3 p.m.	1	33	0	0			Tornado	Small tornado struck farm southeast of Burlington, destroying barn and garage, and damaging a few other buildings and trees nearby. Windows suck- ed from house and wallboard pulled or pushed out from studding about an inch. Nails left pro- truding when wallboard returned to place. Tor- nado moved northeastward.
TEXAS Welch and Ackerly, Daw- son County	3	3-6 p.m.	10	*3			3	5	Wind and hail	During heavy thunderstorm 5,000 to 6,000 acres hailed out. Rain to 3 inches in part of county. Length of hail path 5 miles, skipped 20 miles, hailed 5 more miles. Some property damage by high winds. Storm moved southward.
TEXAS Denver City to Seagraves, Gaines County	3	3-6:15 p.m.	17		0	0	3	5	Wind, hail, rain, and tornado	Considerable crop damage by hail to nearly all farms in area; well house blown away. Small tornado reported to have touched ground 10 miles south of Seagraves about 6:15 p.m., moving south-southwestward. Farmer measured 3 inches of rainfall in 30 minutes. Storm moved southeastward.
PENNSYLVANIA Langhorne (near), Bucks County	3	3:30 p.m.					4	1	Electrical	Barn and contents fired by lightning.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
LOUISIANA Jennings (10 miles south of), Jefferson Davis Parish	3	3:35 p.m.			0	0	1	2	Tornado	Moved northeastward in open country.
NORTH DAKOTA Bismarck (100 miles south- west of), Adams County	3	3:55 p.m.			0	0			Funnel aloft	Observed moving northeastward.
IDAHO Lewiston, Nez Perce County	3	Afternoon							Rain and electrical	Lewiston reported streets and gutters full of water from heavy rain, accompanied by lightning. Rain caused little damage.
KANSAS Lane, Ness, Finney, Hodge- man, Rush, Barton, and Pawnee Counties	3	Afternoon							Hail	Numerous crop insurance claims paid for wheat damage over these counties.
ALABAMA Dannelly Field, Montgomery County	3	6:05 p.m.			0	0			Funnel aloft	Funnel from cloud base which was 6,500 feet high. It finally dissipated about 5 minutes later, after having dipped about 500 feet below cloud base.
NEBRASKA Sidney to near Lodgepole, Cheyenne County	3	6:20- 7:06 p.m.	20	Narrow	0	0	1	1	Tornado	Funnel moving eastward touched ground at 1 spot.
KANSAS Cheyenne, Rawlins, Sher- man, and Thomas Counties.	3	7-11 p.m.					4	5	Hail	Numerous wheat insurance loss claims paid. A number of rather limited areas damaged by small- sized hailstones. Damage amount is for Thomas County. Storm moved southwestward.
NEBRASKA Sidney (12 miles east of), Cheyenne County	3	7:07 p.m.							Hail	Ground covered in center of storm.
FLORIDA Jacksonville, Duval County	3	7:17 p.m.			0	0			Funnel aloft	Seen from Airport; did not touch ground.
NEBRASKA Chadron (10 miles south of), Dawes County	3	8:20 p.m.	Short	Narrow	0	0			Funnel aloft	Reported by sheriff.
TEXAS Childress (15 miles north- west of), Childress County	3	8:34 p.m.			0	0			Funnel aloft	Pilot report.
SOUTH DAKOTA Martin, Bennett County	3	Early evening	10	*3			3	5	Hail and wind	Worst damage from 8 miles west of Martin along Highway 18. Storm moved eastward.
NEBRASKA Boelus (near), Howard County	3				0	0			Funnel aloft	
	3									Minor storms also reported in Monte Vista area, Colo., in Page and Wayne Counties, Iowa; at Grandview and Pattonsburg, Mo.; near Melville, Mont.; in southern Garden County, Nebr.; at Blackwell, Okla.; near Philip, S. Dak.; and near Amelia, Va.
MISSOURI New Franklin and Fayette, Howard County	3-4	10 p.m.- early morning					4	5	Rain	Flash flooding at Franklin and Fayette. 4 to 6 inches of rain.
KANSAS Western counties	4	Most of day			0	0	4	6	Hail, wind, tornado, and funnel aloft	Severe thunderstorm conditions prevailed over much of west beginning about midnight. Hail left many damaged strips. Near Dresden, stones ranged from 1/4 inch in diameter to size of goose eggs with a few near 4 inches in diameter. Some hailed areas covered 45 square miles. Many wheat insurance claims paid in these coun- ties, damages to crops ranged from 70 to 100 percent. Hailstorm from near midnight to 2 a.m., over northern Rush County damaged much

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS (Cont'd.)										uncut wheat. Most other hailstorms later in afternoon or evening. Funnel cloud sighted 4 miles south of Goodland from 6:08 to 6:11 p.m. Tornado touched ground momentarily 4 miles southwest of Dresden at 5:15 p.m., moving first toward southeast and then toward northeast for several minutes before it disappeared. Severe winds damaged boats and docks at Cedar Bluff Dam. Hail damage to crops listed as follows: Sheridan County \$500,000; Decatur County \$48,000; Sherman County \$150,000; Trego County \$2,000. Property damage from hail: Decatur County \$6,000; Trego County \$1,000. Wind damage in Trego County estimated at \$1,000 to property and \$10,000 to crops.
COLORADO Colorado Springs, El Paso County	4	12:30 p.m.					4		Electrical	5 units of motel and a pickup truck destroyed when lightning struck nearby power pole.
NORTH DAKOTA Between Monago and Ellendale, Dickey County	4	12:40 p.m.			0	0			Funnel aloft	Moved east-northeastward at 10 to 15 m.p.h.
NORTH DAKOTA Ellendale (3 miles north of), Dickey County	4	1:30 p.m.			0	0	1	1	Tornado	Highway Patrol reported funnel moving east-northeastward, touched ground, then lifted. No damage.
MINNESOTA Springfield (12 miles south of), Brown County	4	2 p.m.			0	0			Funnels aloft	Pilot reported 3 small funnel clouds extending halfway to ground.
TEXAS Andrews, Goldsmith, and Odessa, Andrews and Ector Counties	4	6:15-7 p.m.					5		Wind, rain, and electrical	11 business buildings unroofed, rain damage to contents. TV antennas, powerlines, and drive-in theater screen downed; house roofs damaged, outhouses blown over, porch blown off house; several trailer houses overturned; several trees uprooted. Estimated wind to 70 m.p.h., blew out store windows and doors. Lightning set fire to tank battery, damage minor. 1-3/4 inches of rain in 25 minutes at Goldsmith; 2 inches in 1 hour at Andrews.
COLORADO Southeastern portion	4	7 p.m.					5	5	Hail, wind, and rain	Las Animas hit by hailstorm classed as worst to hit city. Hail from marble to ice-cube size fell for 35 minutes. Crop losses heavy. Buildings and streets damaged by hail and high water. Total of 3.60 inches of rain measured. All along storm track from Pueblo to southeastern border, losses heavy from hail and flooding. At Cheraw and La Junta, turkey growers suffered heavy loss of birds. Other localities to report losses were Kim, Villegreen, Roberta, Sugar City, and Rocky Ford. Storm moved eastward.
TEXAS Spade, Field-ton, and Pleasant Valley areas, Lamb County	4	8-8:30 p.m.	5	*2				4	Hail	Cotton damage heavy, maturity retarded. Storm moved southwestward.
OKLAHOMA Crawford, Rogers Mills County	4	8:30-9:30 p.m.	10	*2			3	3	Hail	Several buildings on farmsteads damaged severely by hail. Hail completely covered ground, with depth varying from 1 to 2 inches. Hail ranged from 1-1/4 to 2 inches in diameter. Crops in path of storm also suffered severe damage. Storm moved southwestward.
TEXAS Dumas (southwest of), Moore County	4	8:30 p.m.			0	0			Funnel aloft	Moved eastward.
KANSAS Finney County	4	9:50 p.m.			0	0			Funnel aloft	Funnel cloud aloft reported by Highway Patrol about 10 miles north of Garden City, moving south-southeastward.
NEW MEXICO Roosevelt County (southern portion)	4	P.m.							Hail	Local crop damage.
TEXAS Hale Center, Cotton Center, and Petersburg area, Hale County	4	Night			0	0		5	Hail	Blooming cotton heavily damaged; maturity set back. Extensive damage to truck and garden crops. Storm moved southeastward.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
IDAHO Stibnite, Cinnabar and lower end of Profile Roads, Valley County	4						3		Wind	Wind of such terrific velocity it nearly reached hurricane proportions struck narrow belt along Stibnite, Cinnabar, and lower end of Profile Roads, either bowling over trees at roots or snapping off many above ground.
	4									Minor storms also reported at Lansing, Mich.; near Benchland, Mont.; at Eldorado and Freedom, Okla.; at Fouststown, Pa.; and in Cedar Bluff community, Tenn.
OKLAHOMA Stillwater, Payne County	5	12:15 p.m.				5			Rain	Heavy rain blamed for automobile accident which injured 5 persons.
KANSAS Clark County	5	1:47 p.m.			0	0			Funnel aloft	Reported southwest of Minneola, moving north-eastward.
TEXAS Ft. Worth, Tarrant County	5	2-3 p.m.				1	5		Wind, electrical, and rain	Part of squall line. 3 roof cave-ins account of wind and water. Police reported over 50 minor wrecks. Boy fell through window he was trying to shut. Lightning knocked concrete steeple from church. Storm moved eastward.
TEXAS Rockwall, Rockwall County	5	2:10 p.m.			0	0	2		Tornado	Blew car off road.
ARKANSAS Newport, area, Jackson County	5	3 p.m.			0	0		1	Tornado	Funnel cloud observed for several minutes, dipped down briefly and destroyed small shed 1 mile north of Newport; moved northwestward.
TEXAS Tyler (2 miles east of), Smith County	5	3 p.m.			0	0			Funnel aloft	
PENNSYLVANIA Dimock, Susquehanna County	5	4 p.m.					5	1	Electrical	School building fired by lightning.
COLORADO Southeastern portion	5	Afternoon-evening					4	4	Hail and rain	Hail and rain damaged crops and property along Arkansas River and adjacent areas. Heavy hail damage reported in eastern Las Animas County, near Kim and Troy. At Manitou Springs, 80 feet of retaining wall washed out by heavy rain in Pike's Peak area. Some flooding reported along Timpas Creek, a branch of Arkansas River.
MICHIGAN Southeastern portion	5	Late afternoon				1	3		Wind, electrical, and rain	Damage to trees, windows, TV antennas, etc. Injury occurred in Detroit when small building collapsed.
TEXAS Flomot (near), Motley County	5	6-6:40 p.m.	4	5000			3	5	Hail, electrical, and wind	Cotton, feed crops, and roofs damaged by hail resembling flat pieces of ice. Accompanying high wind. 4 fires ignited by single bolt of lightning destroyed a few acres of grazing. Storm moved southeastward.
NEBRASKA Big Springs (Southeast of), Deuel County	5	Evening	5	*2			2	5	Hail	Storm moved eastward.
NEW MEXICO Springer (4 miles east of), Colfax County	5	P.m.							Hail	Damage to grain and feed crops.
NEW MEXICO Hondo-Ruidoso area, Lincoln County	5	P.m.							Hail	Considerable damage to apples near Hondo; windows and neon signs damaged in Ruidoso.
KANSAS Wallace County	5								Hail	Hail fell over 90-square mile area south and east of Weskan with much damage to crops.
	5									Minor storm also reported near Stratton, Colo.
WASHINGTON Cascade Mountains	5-6								Electrical	Numerous forest fires started by lightning, which burned several hundred acres of timber.
TEXAS Jefferson County	6	8:53 a.m.			0	0			Funnel aloft	Visible 12 minutes, 6 miles south of airport.
NEBRASKA Kearney (8 miles northeast of), Buffalo County	6	Noon			0	0			Funnel aloft	Moved northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
OHIO Kent (3 miles southeast of), Portage County	6	Noon			0	0			Funnel aloft	Pilot report.
VIRGINIA Ashburn (near), Loudoun County	6	1 p.m.	3	50	0	1	4		Wind, hail, rain, and tornado (suspected)	Unroofed barn, uprooted trees (22 on 1 farm). Corn stripped by hail. At least 1 person re- ported seeing funnel cloud. Storm moved north- eastward.
TEXAS Caldwell (7 miles west of), Burleson County	6	1:10 p.m.			0	0			Funnel aloft	
TEXAS Dayton (3-1/2 miles south- west of), Liberty County	6	1:30 p.m.	1/4	1500	0	0	3		Tornado and electrical	Moved northeastward, dipped once and retreated into cloud. Damaged henhouses and cowsheds. Occurred during electrical storm.
OKLAHOMA Haskell area, Muskogee County	6	1:30- 2:10 p.m.			0	0			Funnels aloft	2 funnels aloft, sighted in Haskell area, 1 south of Haskell at 1:30 p.m., and the other northwest of Haskell in Mounds area at 2:10 p.m.
NEW MEXICO Alcalde and vicinity, Rio Arriba County	6	2 p.m.							Hail	Damage to fruit in area. Considerable damage to experimental crops at State Experiment Farm.
MICHIGAN Ionia County	6	2:45 p.m.			0	0			Funnel aloft	Observed by airline pilot.
NEBRASKA Box Butte County (west- central por- tion)	6	Afternoon	18	*1			2	4	Hail	Storm moved southeastward.
OREGON South-central and south- eastern por- tions	6	Afternoon -evening					5	4	Electrical and rain	Locally severe lightning storm scattered over areas in south-central and southeast started grass fires which burned-over in excess of 30,000 acres of range land, started numerous small forest fires, struck several electric installations damaging equipment and inter- rupting service. Heavy rains accompanying storm in some areas washed out section of main highway north of Vale. Damage by light- ning \$100,000; by rain \$5,000.
PENNSYLVANIA Southeastern portion	6	Afternoon -night				1	5		Electrical, wind, and rain	Storms most severe in Chester County caused widespread damage as lightning fired homes, a church, a furniture store, and utility serv- ices. In Downingtown area, 4 roofs blown from houses and another damaged extensively by 80-m.p.h., winds. Some crop damage also reported from heavy downpour of rain. Storm moved eastward.
OKLAHOMA Salt Creek Canyon area, Blaine County	6	4:15- 4:45 p.m.			0	0	1	1	Tornado	No damage reported from tornado which touched ground several times in open country. Wit- nesses reported dust could be seen stirring from action.
TEXAS Tyler, Smith County	6	5:30 p.m.			0	0	4		Tornado, wind and rain	Destroyed carport and leveled 90-foot high and 150 foot long warehouse wall, damaging con- tents, also house roof. Accompanying strong winds and heavy rain. Storm moved north- eastward.
TEXAS McNeil, Travis County	6	6 p.m.			0	0			Funnel aloft	
TEXAS Austin, Travis County	6	6:45 p.m.					4		Wind	5 houses and 1 car damaged. 1 car demolished. Part of squall line. Storm moved southeast- ward.
INDIANA Bristol, Elk- hart County	6	6:54 p.m.			0	0			Funnel aloft	Observed moving northeastward.
MICHIGAN Kalamazoo County	6	7 p.m.			0	0			Funnel aloft	Observed by several persons.
MISSISSIPPI Jackson (10 miles north- east of), Madison County	6	7:08 p.m.			0	0			Funnel aloft	Appeared only momentarily.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path miles	Width of path yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
INDIANA Goshen, Elk- hart County	6	7:11 p.m.			0	0			Funnel aloft	Observed moving northeastward.
MINNESOTA Waseca and Dodge Counties	6	P.m.							Hail	Hail damaged crops in strip 13 miles by 1-1/2 miles in middle of county, approximately 18 sections hit. Hail also reported in 8 sections of Dodge County.
KANSAS Sherman County	6								Hail	Pea-sized hail damaged wheat on about 1,000 acres 10 miles northeast of Goodland.
TENNESSEE Spring Hill and Columbia area, Maury County	6							1	Electrical	9-room house at Spring Hill ignited by lightning and destroyed. 3 power substations and pump house also damaged by lightning.
TEXAS El Paso area, El Paso County	6							5	Hail	Cotton over 600 acres complete loss; 1,500 acres 40 percent loss.
	6									Minor storms also reported at Mt. Home, Idaho; in Cherokee County, Iowa; near Marsland, Nebr.; in Cumberland County, N. C.; in Rockdale area, Tex.; and at Winter, Wis.
GEORGIA Banks, Forsyth, Habersham, Hall, and White Counties	6-9						3	2	Rain, wind, and electric	Series of thunderstorms and accompanying high winds and extremely heavy rain caused widespread damage over several counties area of northeast during 4-day period. Gainesville, Hall County, had almost 7 inches of rain in 4 days and many homes, business buildings, and streets damaged by flood waters. Winds reached speeds estimated at 60 m.p.h., and caused extensive damage to utility lines, trees, and small buildings. 3 houses damaged by lightning at Cornelia, Habersham County. 250-foot shed unroofed at Cleveland, White County, damaging parked automobile.
MISSOURI Jamesport, Davies County	7	12:30 a.m.			0	0	4	2	Tornado	Several farm buildings damaged.
IDAHO Camas Prairie, Jefferson County	7	7:22 a.m.				1	1		Electrical	Man reported that while he was atop hay baler, bolt of blue lightning struck "within hand reaching distance" stopping his watch and knocking him to ground.
TEXAS Kingsville, Kleberg County	7	11:30 a.m.			0	0			Funnel aloft	
IDAHO Lincoln, Minidoka, Blaine, and Butte Counties	7	Morning							Electrical	Lightning set fire which ravaged about 60,000 acres of grazing land, which will probably result in loss of fall grazing for sheep.
TEXAS Houston (20 miles south of), Brazoria County	7	1:45 p.m.			0	0			Funnel aloft	
TEXAS Edna (9 miles north of), Jackson County	7	1:50 p.m.			0	0			Funnel aloft	
TEXAS Orange (west of), Orange County	7	2 p.m.					3		Wind and rain	Barn, garage, and henhouse razed, debris scattered over 1 acre; utility pole snapped off. 1-1/2 inches of rain in 2 hours.
TEXAS Sealy (10 to 15 miles west of), Colorado County	7	2:10 p.m.			0	0	1	1	Tornado and funnel aloft	Small tornado in open country. Funnel aloft sighted at same time.
TEXAS Luling (4 miles southwest of), Guadalupe County	7	3:10 p.m.			0	0			Funnel aloft	
MONTANA Dillon, Beaver- head County	7	5 p.m.	5	*3			1	4	Hail	Hailstones up to 2 inches. Storm moved northward.

See footnotes at end of table

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MONTANA Yellowstone County	7	6 p.m.	10- 15	1000	0	0	1	5	Hail and funnel aloft	Hailstones up to 1 inch. Funnel observed 15 miles southwest of Billings. Storm moved southeastward.
TEXAS Kaufman - Van Zandt County line	7	7 p.m.			0	0			Funnel aloft	Moved eastward.
LOUISIANA Hackberry (5 miles south of), Cameron Parish	7	7:45- 7:50 p.m.			0	0			Funnel aloft	Little movement.
TEXAS Hillsboro (10 miles east of), Hill County	7	8:05 p.m.			0	0			Funnel aloft	Pilot report.
PENNSYLVANIA Latrobe - Johnstown area, West- moreland and Cambria Counties	7	8:20 p.m.					4	1	Electrical	3 barns fired by lightning.
ALABAMA Adamsville, Jefferson County	7	8:30 p.m.			0	0			Funnel aloft	Lasted 5 to 10 minutes.
TEXAS Waco (30 miles east-northeast of), Limestone County	7	8:55 p.m.			0	0			Funnel aloft	Pilot report.
COLORADO Logan County	7	11:30 p.m.			0	0	2		Tornado (suspected)	Small tornado, 3 to 4 miles west of Sterling, blew down 6 telephone poles and did minor dam- age at oil company warehouse.
TENNESSEE Tullahoma, Coffee County	7	P.m.						1	Wind	Strong winds blew down trees and limbs, causing major disruption of power and phone services. Winds also caved in concrete wall of building and unroofed shed.
IDAHO Northern counties	7	Night							Wind, rain, hail, and electrical	Lightning storm passed over St. Maries area, disrupting power and telephone services, with 3 small transformers being burned out com- pletely. Heavy electrical storm with hail up to 1 inch in diameter at Spalding; accompanied by "cloudburst" which lasted about 10 minutes. Storm closed Coyote Grade Road near Spalding and torrent of water coursing down steep grade spilled mud and debris onto Lewiston-Spalding Highway. At one side of canyon, there was evidence of 6-foot wall of water coming down steep slope. Wheat fields levelled by wind and rain.
NORTH DAKOTA Hettinger, Adams County	7		40	*20			4	5	Hail	Many windows broken and roofs damaged. Storm moved southeastward.
WASHINGTON Cascade Mountains and east	7								Electrical, wind, and rain	Lightning started numerous forest fires in Cascades and grass fires in east. Wind damage reported in vicinity of Walla Walla. Slides blocked roads in White Pass and Trout Lake areas.
	7									Minor storms also reported in Huerfano and Las Animas Counties, Colo.; at Helena, Mont.; and at Berwick, Pa.
LOUISIANA Holly Beach (near), Cam- eron Parish	8	10:45 a.m.			0	0			Funnel aloft	Existence not confirmed.
TEXAS Jefferson County	8	11:02 a.m.			0	0			Funnel aloft	Observed along Intercoastal Canal.
MINNESOTA Yellow Medicine County	8	A.m.					1		Hail	Hail reported over 15 sections. Size of hail or loss unknown. Storm moved eastward.
WASHINGTON Methow Valley, Okanogan County	8	4 p.m.					4	4	Rain and hail	Several orchards in Methow Valley damaged by hail. Erosion severe and roads damaged by heavy rain.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
COLORADO Lamar (30 miles north of), Kiowa County	8	4:38 p.m.			0	0			Tornado	Pilot reported tornado which touched ground briefly.
GEORGIA Milledgeville, Baldwin County	8	4:40 p.m.					3	1	Rain, wind, and electrical	Thunderstorm winds and heavy rains caused extensive damage in Milledgeville area. Telephone and electric services disrupted for several hours as result of broken lines. Some streets flooded when almost 4 inches of rain fell.
NEBRASKA Butte (west and north of), Boyd County	8	4:45 p.m.	5	*1			1	3	Hail	Stones 1 to 2-1/2 inches in diameter. Storm moved northeastward.
COLORADO Monte Vista (northeast of), Rio Grande County	8	Afternoon						4	Hail	Hail did major damage to 500 acres of potatoes and lesser damage to 1,000 acres.
SOUTH DAKOTA Springfield (west of), Bon Homme County	8	Afternoon		*4				4	Wind and hail	Most damage by wind.
SOUTH DAKOTA Presho to Iona, Lyman County	8	Afternoon	50					4	Hail	Scattered areas of hail damage. Storm moved southeastward.
COLORADO Northeastern portion	8	Afternoon -evening						4	Hail	Scattered areas of hail general in area from Morgan County eastward to Sedgwick County. Over 1,000 acres of beets heavily damaged in Snyder and Dodd areas. Hail damage heavy near Hoyt also. Hail and wind caused damage north and east of Sedgwick and southeast of Akron.
COLORADO Eckley (north- west of), Yuma County	8	Afternoon -evening					4		Electrical	Modern ranch house and contents burned when house struck by lightning.
MASSACHUSETTS Northern and central por- tions and NEW HAMPSHIRE southeastern portion	8	Afternoon -evening					4	2	Electrical, wind, and rain	Thunderstorms inflicted widely scattered damages over area, mostly in northern half of Massachusetts and southeastern corner of New Hampshire. Minor wind damage with some trees and utility lines downed. Lightning caused most damage, with barns and homes burned or damaged. 4 cows killed at Amherst, Mass. Locally heavy rains flooded catch basins and washed out some streets. A few gardens and truck plantings washed out.
NEW YORK Scattered areas	8	Afternoon -night			3			2	Wind, electrical, and rain	58 m.p.h., winds on Staten Island; 5 homes damaged by lightning, trees downed, sudden squalls capsized 60 sailboats, and subways interrupted. 1 death on highway and 1 person struck by lightning. In Schenectady County, 2 killed in automobile accident. Heavy rains and flooding in Albany-Troy-Schenectady area; lightning caused phone and power outages. In Elmira area, heavy rain. In Erin-Breesport area, 2 buildings destroyed; 5 bridges out on secondary roads, due to severe flooding. Some flooding along low-level streets of Albany and Schenectady; many basements inundated by water.
KANSAS Sherman, Cheyenne, Greeley, and Rawlins, Counties	8	5-7 p.m.	10	*3			4	5	Hail	Marble-sized hail fell in southern Cheyenne and northern Sherman Counties, damaging much wheat. Some roof and window damage. A few stones 3 inches in diameter. For parts of this area, this was third hailstorm from 4th to 8th. Scattered hail damages reported over Greeley and Rawlins Counties. Damages are for Sherman and Cheyenne Counties. Storm moved east-northeastward.
NEBRASKA Spencer (north- east of), Boyd County	8	6 p.m.					1	3	Hail	Stones 1 to 2-1/2 inches in diameter. Storm moved eastward.
NEBRASKA McCook (5 miles northwest of), Redwillow County	8	7:30-8 p.m.	3	*1			1	4	Hail	Stones 1 to 1-1/2 inches in diameter. Storm moved northeastward.
NEBRASKA Meadow Grove to Richland, Madison to Colfax Counties	8	7:40-11 p.m.	40	*3-6	0	0	3	6	Hail and tornado	Stones up to size golf balls. Small tornado 9-1/2 miles south of Battle Creek. Property damage by tornado. Storm moved southeastward.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
VIRGINIA Prince William and Fairfax County Line	8	8:30 p.m.			2		4		Rain	Bull Run Creek flooded, engulfing car in which 2 tourists were passengers. Telephones shorted, basements flooded, and power interrupted.
NEBRASKA Bellwood (1/2 mile north of), Butler County	8	9 p.m.	Short	Narrow	0	0	2	1	Tornado	Touched ground briefly.
NEBRASKA Polk County (northern portion)	8	9-9:30 p.m.	14	*4			4	5	Hail	Stones 1/2 to 1 inch in diameter. Storm moved southeastward.
NEBRASKA Merrick to Col- fax Counties	8	9:30-11 p.m.	18	*3			4	4	Hail and wind	Ripe wheat shattered. Hailstones 5/8 to 1-1/2 inches in diameter. Storm moved eastward.
CONNECTICUT	8	Early evening				1	4	1	Electrical and wind	Fire from lightning strike destroyed home and contents at North Granby, Hartford County; loss estimated at \$10,000. As thunderstorms moved across State, sudden wind squall caused dangerous situation at children's boat regatta off Greenwich. Winds estimated at 50 m.p.h., upset about 40 small boats and threw some 80 children into Long Island Sound. All were rescued without serious mishap, but 1 injured in tumble from her boat.
NEBRASKA Holt County (southwestern portion)	8	Early evening	15- 20	*2			4	5	Hail and electrical	Stones 1/2 to 2-1/2 inches in diameter, with large irregular ice chunks. 40 cattle killed by lightning. Storm moved northeastward.
NEBRASKA Lynch (east of), Boyd County	8	Evening					2	3	Hail	Stones up to size golf balls.
SOUTH DAKOTA Douglas County	8	Evening	20	*5		1	3	5	Hail and electrical	Man severely burned by lightening near Armour. Hail marble to walnut size. Barn burned near Belmont. Storm moved eastward.
KANSAS Hamilton County	8	Night							Electrical and wind	Lightning struck in a wheat field in north-eastern part of county, setting fire to 2,000 acres of wheat and stubble. Approximately 1,500 acres of wheat that had been running 20 to 30 bushels per acre burned. Wet ground and high winds hindered effective fire fighting.
NEBRASKA Dakota County	8	Night					3		Rain	Several hundred acres of crops destroyed by flooding.
	8									Minor storms also reported at Kendrick, Idaho; in Adair, Plymouth, and Pottawattomie Counties, Iowa; at Jonesboro, Maine; near Horace and Marsland, at Neligh and Omaha, and in south-eastern Antelope County, Nebr.; in Essex, Hudson, and Union Counties, N. J.; at Bruce, S. Dak.; and near Smithfield, Va.
NEBRASKA Beatrice (north of), Gage County	9	4:15 a.m.			0	0			Funnel aloft	
TEXAS Bay City (22 miles north- east of), Brazoria County	9	10:38 a.m.			0	0			Tornado (suspected)	Pilot report.
NEBRASKA Tilden (west of), Madison County	9	Noon				1	1	1	Electrical	Woman using phone knocked unconscious.
NORTH DAKOTA Grand Forks (4 miles south- west of), Grand Forks County	9	12:56 p.m.			0	0			Funnel aloft	Funnel dissipated at 1:14 p.m.
MISSISSIPPI Biloxi (12 miles south- west of), Harrison County	9	1:29 p.m.			0	0			Funnel aloft	Over Mississippi Sound, incipient waterspout.
MONTANA Anceney, Gallatin County	9	3:10 p.m.	4	*1			1	4	Hail	Some fields damaged 75 percent. Hailstones up to 3/4 inch. Storm moved southeastward.

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JULY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
MICHIGAN Entire State	9	Afternoon			1		4		Electrical	1 man killed by direct strike in Delta County. Other damage reported from LaPeer and Otsego Counties, mostly to buildings and livestock.
MONTANA Buffalo area, Fergus County	9	5:45 p.m.	8-10	*1/2 -1			1	3	Hail	Hailstones up to 1-1/2 inches. Center of storm 1 mile from Buffalo. Storm moved northeastward.
COLORADO Weld and Mor- gan Counties	9	8 p.m.					3	4	Hail	Golf-ball size hail hit scattered areas in Weld and Morgan Counties. Hail damage heavy in Kersey, Roggen, and Keensburg sections. 2 planes engaged in cloud seeding damaged by hailstones while flying through hail clouds.
NEBRASKA Nelson and vicinity, Nuckolls County	9	Evening					3	3	Hail	Stones as large as golf balls.
NEBRASKA Marsland- Hemingford, Dawes and Box Butte Counties	9	Evening					3	4	Hail	Stones up to size of eggs.
WYOMING Lance Creek, Niobrara County	9	Evening					3	4	Hail	
NEBRASKA Hemingford (west and south of), Box Butte County	9	Night					2	3	Hail	Stones size of golf balls. Storm moved south-eastward.
ARIZONA Yuma, Yuma County	9				1		1	1	Heat	Baby died of heat prostration.
	9									Minor storms also reported near Clarkfield, Minn.; at Pee Dee, Mo.; and near Bladen, Nebr.
NEBRASKA Lancaster to Richardson Counties	9-10	Midnight -2:30 a.m.	75	*25	0	0	6	6	Rain, tornado, and hail	Hail path from southeastern Lancaster County to northwestern Dawson County. Severe flooding of lowlands. Many bridges washed out. Tornado in southeastern Lancaster County, caused only a few thousand dollars damage. Storm moved east-southeastward.
MISSOURI St. Joseph, Buchanan County	10	1:25-8 a.m.					2		Rain	2-1/2 inches of rain.
MICHIGAN Onaway, Presque Isle County	10	1:30 a.m.					5	1	Electrical	Clothing factory burned from lightning strike.
KANSAS Shawnee County	10	6 a.m.					4		Electrical	Lightning struck barn 3 miles east of Lake Shawnee. Barn and contents of 1,800 bales of hay and some other feed and farm machinery burned.
TEXAS Houston Airport (south-south- west of), Harris County	10	10:03 a.m.			0	0			Funnel aloft	
WYOMING Gillette (30 miles south- west of), Camp- bell County	10	11:45 a.m.			0	0			Funnel aloft	
TEXAS Alvin (6 miles west of), Brazoria County	10	12:15 p.m.			0	0	1	1	Tornado	Moved eastward over open country.
WYOMING Moorcroft (7 miles west of), Crook County	10	12:30 p.m.			0	0	1	1	Tornadoes	2 tornadoes.
WYOMING Gillette (50 miles south- east of), Weston County	10	1:30 p.m.			0	0	1	1	Tornado	

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Newell area, Butte County	10	2 p.m.	1	*15			5	4	Wind and hail	Most hail marble size, but some stones measured 3 inches in diameter. Storm moved southeastward.
SOUTH DAKOTA Lawrence County	10	2 p.m.					4		Hail	In Lead, stones size of marbles while sizes ran to as large as baseballs at Baldwin and Astec Hill. Storm extended westward as far as Trojan.
MISSOURI LaMonte, Pettis County	10	2:30 p.m.					3	3	Wind, electrical, rain, and hail	Several farm buildings damaged. Some hail damage.
ALABAMA Theodore (near), Mobile County	10	Afternoon				1	1	1	Electrical and rain	Lightning knocked man unconscious when he was working on truck with a winch and cable tied to a tree.
INDIANA Zionsville (near), Boone County	10	Afternoon			1		1	1	Electrical	Boy struck by lightning while going to barn to close door.
INDIANA Geist Reservoir (near Indianapolis), Marion County	10	Afternoon				2	1	1	Electrical	Boat with 2 fishermen struck by lightning.
INDIANA Indianapolis, Marion County	10	Afternoon				2	3	1	Wind	During severe thunderstorm, plate glass window shattered by strong winds, cutting 2 persons.
NEW YORK Dunkirk-Jamestown areas, Chautauqua County	10	Afternoon							Hail, wind, rain, and electrical	Violent thunderstorms, heavy rain, and golf-ball-sized hailstones. Lightning caused considerable damage to property and fruit crops.
WYOMING Long Lake (near)	10	Afternoon					1	4	Electrical	Lightning caused fire which burned about 60 acres.
NEBRASKA Harrison-Crawford area, Sioux and Dawes Counties	10	3:50 p.m.	10				3	5	Hail	Stones size of pool balls. Some livestock killed. Storm moved southeastward.
ILLINOIS Oakwood, Vermillion County	10	5 p.m.	2	50-100	0	0	1	3	Tornado	Crops damaged on 5 farms. Tornado moved southeastward.
PENNSYLVANIA Western half	10	Afternoon- night			1		4		Electrical	Several houses fired by lightning. Man killed near Warren when struck by lightning while working in hay field. Electrical service interrupted for a time throughout area, due to burned out transformers caused by lightning strikes.
KANSAS Franklin, Miami, Linn and Johnson Counties	10	6:30- 11:30 p.m.	15	*15	0	2	5	5	Wind, electrical, rain, hail, and funnel aloft	During severe thunderstorm considerable crop and property damage resulted from severe winds and hail. Lightning strikes interrupted electrical service, slightly injured a woman north of Olathe, and killed 8 head of cattle near Pomona. Winds estimated at near 100 m.p.h., tore up trees, power-and transmission lines, bent and broke antennas, damaged porches, roofs, and some farm buildings. Man injured when large door blew off track and fell on man's leg. Hail caused severe local crop damage. Funnel cloud aloft sighted 7 miles northeast of Ottawa at 7:55 p.m. Heavy rain caused much soil erosion. Damages follows: Hail \$20,000 to crops; wind \$70,000 to property, \$10,000 to crops; rain \$25,000 to property, \$50,000 to crops; lightning \$1,700 to property. Principal damaged area east of Ottawa, north of Paola extending over much of Johnson County. Storm moved southeastward.
NEBRASKA Stapleton (southeast of), Logan County	10	8:40 p.m.	Short	Narrow	0	0	3	2	Tornado	
NEBRASKA North Platte (25 miles east of), Lincoln County	10	9:45 p.m.							Hail	Stones size of baseballs reported by State Patrol. Mostly over open range country.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NEBRASKA Clay and Fill- more Counties	10	10:30 p.m.	20				4	3	Wind and hail	Stones sparse. Storm moved eastward from northern Clay County to Fairmont.
NEBRASKA Falls City (6 miles north- west of), Richardson County	10	Evening					2	5	Hail and rain	
WEST VIRGINIA Hancock County	10	Evening						1	Rain	Numerous landslides caused by heavy rain; undermining of railroad track caused overturn of locomotive. Storm sewer system of Chester almost entirely destroyed.
NEBRASKA Nelson (north and east of), Nuckolls County	10	Night					1		Hail	Stones small, but numerous. Some corn completely stripped.
	10									Minor storms also reported at Greeley, Colo.; at Anderson, and Muncie, and in Fountain County, Ind.; at Council Grove, Kans.; at Clinton, Hermitage, Nevada, and Sedalia, Mo.; and near Selden, at Funk, Holdrege, and Valentine, and in Dawson County, Nebr.
NEBRASKA York County (west-central and central portions)	10-11	10:40 p.m.- 12:30 a.m.	12	*2-3			4	6	Hail and wind	Stones small, but numerous, and driven by strong wind. Storm moved southeastward.
NEBRASKA Saline County (southern portion)	10-11	11 p.m.- 3 a.m.	25	Narrow	0	0	5	2	Wind and tornado (suspected)	Heavy damage near Milligan and Tobias. Storm moved east-northeastward.
KANSAS Eastern third	10-11	11 p.m.- 4 a.m.	260	*125	4	12	7	7	Rain, hail, wind, electrical, tornadoes, and funnels aloft	Severe thunderstorm beginning with rather heavy rain in north-central about 11 p.m., progressed eastward and southeastward with rapid development of severe elements terminating in extreme southeast corner of State about 4 a.m. Approximately 25,000 square miles lying east of line from Smith County through Abilene, Emporia, and Independence felt some damaging effects. Several areas of especially severe wind damage quite evident. Localities suffering greatest from these elements were much of Marshall County, especially in and near Marysville; Junction City, where trailer court struck by severe wind and 10 persons injured; Council Grove, Morris County; Lyon County; and Yates Center, Woodson County. Second area of particularly serious damage was in Shawnee, Jefferson, Douglas, Johnson and Atchison Counties. Damaging tornadoes: 12:45 a.m., 5 miles northwest of Topeka; 1:03 a.m., 8 miles southwest of Topeka; 1:20 a.m., 2 miles east of Valley Falls; 2 a.m., at Olathe; and 2:35 a.m., at Yates Center. Funnel clouds sighted at Minneapolis at 12:30 a.m., and in northwestern Wilson County at 3 a.m. Roar or whine of tornado reported from Haddam, Washington County, at Marysville, Blue Rapids, and Enterprise. Most severe part of windstorm lasted only 15 to 30 minutes, but came with sudden onset. Wind speeds estimated at numerous places between 75 and 100 m.p.h. At Topeka, gusts of 92 m.p.h., recorded; at Emporia 98 m.p.h.; Junction City 80 m.p.h.; Lawrence 70 m.p.h.; Olathe 64 m.p.h.; and at Kansas City 63 m.p.h. Tree damage over area was most prominent, ranging from trees of all sizes being uprooted, broken off at stump, split, and large branches broken from upper parts. Across northern sections of Topeka, 1,000 trees estimated completely destroyed and 4,000 more badly damaged. In addition to direct wind damage to power-and telephone lines, many broken by falling trees and limbs, 13,000 phones out of service in northeast. A number of houses and automobiles crushed by falling trees. In many cases, streets and highways blocked. Electric service in some cases not restored for several days. Roofs, shingles, plate-glass store fronts, house windows, T.V. antennas, outdoor movie screens, farm buildings, and flattened crops all showed terrific violence of wind. At Council Grove, oak tree, estimated to be 300 years old, called Council Oak, due to council meetings with Indians in pioneer days, broken

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS (Cont'd.)										<p>off at stump. Noticeable damage path mile or 2 wide extended from near Council Grove to south-east of Emporia, as result of severe winds. In Topeka, between 4,000 and 5,000 damage claims filed.</p> <p>4 tornadoes caused minor damage as they dipped to ground only momentarily. The Olathe tornado remained at tree-top height over most of its 1-1/4-mile course across southern part of town, and damage confined largely to upper portions of buildings.</p> <p>Hail frequently damaging element, particularly in Republic, Washington, Marshall, and Brown Counties; in eastern Jackson and western Atchison Counties; in Shawnee, Osage, Douglas, and Franklin Counties; and in Wilson and Neosho Counties. Corn stripped of its leaves, roofs pounded, cars dented, and windows broken by fiercely wind-driven hail. In Marshall County, stones described as large as 2-1/2 inches in diameter, with prongs of ice extending out 1/2 inch from the stones. In Wilson County, stones pancake-shaped, 1 inch by 3-1/2 inches.</p> <p>Incessant lightning reported over most of storm area with brilliant flashes and prolonged thunder. Damaging strikes reported to store building at Minneapolis; 2,000 bales of alfalfa near Wakefield; large tree at Junction City; farmhouse near Matfield Green; parish house at Troy; large barn south of Olathe; 5 strikes mostly affecting electrical services in Wyandotte County; transformer near Ottawa; store building at Fort Scott; city water-softening plant with damage to pumps and motors at Pittsburg; residence struck twice in 1 hour at Chanute.</p> <p>In northeast, storm vented its fury in form of rain. Weather Bureau cooperative observer at Atchison reported 5.07 inches of rain in 45 minutes. Atchison is a city of hills and as water poured or rushed down streets, automobiles by the dozen swept along in the torrents, at least 200 cars estimated to have been ruined. Many business houses on lower ground ruined, and many basements filled with overflow water. Farm lands seriously washed, bridges and culverts torn out, highways and railroad embankments washed out or impaired, and many crops ruined.</p> <p>Damage losses estimated as follows: Doniphan County \$5,480 to property; Atchison County \$19,200,000 to property, \$5,500,000 to crops; Jackson County \$50,000 to property, \$70,000 by hail to crops; Jefferson County \$55,000 to property, \$1,500,000 to crops; Johnson County \$10,000 to property, \$3,000 to crops; Douglas County \$101,000 to property, \$10,000 to crops; Osage County \$150,000 to crops; Shawnee County \$500,000 to property, \$1,500,000 to crops; Morris County \$20,000 to property; Marshall County by wind \$818,000 to property, \$100,000 to crops; by hail \$200,000 to property, \$100,000 to crops.</p> <p>Flash flood damage in Atchison estimated at \$4,700,000.</p> <p>3 persons drowned at Atchison and 1 at Topeka.</p>
KANSAS Seward County	11	Midnight-3 a.m.			0	0	4	4	Wind and dust	<p>Severe winds of twisting nature hit Liberal between 12:30 and 1 a.m. Blowing dust reduced visibility to 1/2 block in initial gust. Trees damaged and some electric service interrupted by broken wires. Most damage at airport where some indication of tornadic action to several hangars and 2 small planes. Sudden temperature rise of 16° noted at 1:30 a.m. Temperature remained above 90° until after 3 a.m. After first gusts there was dead calm for a few minutes, followed by more severe winds estimated at 100 m.p.h. Crop damage was over southern part of county. Storm moved east-southeastward.</p>
MISSOURI Barton County	11	3 a.m.					4	4	Electrical and rain	Vivid lightning and heavy rain. Many trees and buildings damaged.
MISSOURI Aurora, Lawrence County	11	6:30 a.m.				2	3		Electrical	Lightning hit barn, stunned 2 persons.
MISSOURI Phelps County	11	7:30-8 a.m.					4	3	Wind	Wind estimated 50 to 70 m.p.h. Heavy damage to trees, roofs, and wires.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Drexel, Cass County	11	Early morning					3	3	Wind	Wind estimated at 90 m.p.h. Many trees and lines downed. Several buildings badly damaged.
MISSOURI Kansas City, Jackson County	11	Early morning					3		Wind	Wind hit 63 m.p.h., at Municipal Airport. Many trees and wires downed.
TEXAS Orange, Orange County	11	9:02- 9:07 a.m.			0	0			Funnel aloft	
TEXAS Winnie (3 miles northeast of), Chambers County	11	10:39- 10:44 a.m.			0	0			Funnel aloft	
ILLINOIS Wayne, Edwards, and Wabash Counties	11	12:45- 1:30 p.m.	25	50	0	1	4	3	Tornado and rain	Intermittent tornado path from 4 miles north- west of Enterprise through northern Edwards County and into Wabash County. 1 minor injury near West Salem. Damage to approximately 10 homes or farmsteads. Bonpas Creek flooded. Storm moved east-southeastward.
KANSAS Crawford County	11	Much of day							Electrical	Thunderstorm lasting from early morning until late afternoon resulted in a number of dam- aging lightning strikes in Pittsburg; at 10:35 a.m., extensive damage to brickwork at an apartment house; at 10:35 a.m., laundry several blocks distant hit at same time; dur- ing afternoon transmitter of radio station KSEK struck, put out of duty for a while; at 1:10 p.m., house on east side of town struck with damage to gable and wiring; during after- noon 1 or more transformers damaged.
FLORIDA Citrus Park, Hillsborough County	11	2 p.m.			0	0			Whirlwind	Small but intense whirlwind passed through residential area but caused only slight dam- age along short, narrow path.
MAINE Buxton, York County	11	2:30 p.m.	1	100	0	0	3	1	Tornado, elec- trical, and rain	House destroyed, lumber pile dispersed, and trees felled. Funnel moved slowly and errat- ically southeastward. Wind light in surround- ing area. Lightning killed livestock with \$500 loss. Some road damage by heavy rains.
MINNESOTA Marshall and Norman Counties	11	3 p.m.	3 *	1-1/2			1	4	Hail	Hail damaged crops near Warren. 16 sections in Norman County also reported some hail. Storm moved southeastward.
MASSACHUSETTS Millers Falls, Franklin County	11	3:30 p.m.	1	100	0	0	3	1	Tornado and hail	2 buildings unroofed; trees felled; some hail in vicinity. Storm moved eastward.
MASSACHUSETTS Most of State except South- east; NEW HAMPSHIRE, southern portion; MAINE, south- western corner; and VERMONT, extreme south- ern portion	11	Afternoon				10	5	3	Electrical, rain, wind, and hail	Severe thunderstorms hit many areas in these sections, with much local damage from light- ning and fires there, and from washing and flooding rains, and hail. Injuries mostly lightning burns or falls caused by startling due to lightning strikes. Crop damage mostly from hail, some washouts. Local road wash- outs in many areas. Many trees and utility lines downed by wind. Thousands of homes had service outages.
NEW YORK Poughkeepsie area, Dutchess County	11	Afternoon					2		Wind and electrical	Severe thunderstorm in Poughkeepsie area. Tele- phones and power out over large area. Winds near 60 m.p.h. 1 home struck by lightning.
PENNSYLVANIA Southeastern counties	11	Afternoon					4	1	Electrical and wind	Barn fired by lightning, and many trees toppled by high winds.
NEW YORK Albany, Albany County	11	Afternoon -evening							Hail, and electrical	Severe thunderstorm with hail up to size of golf balls did considerable damage to struc- tures and small area of crops. Lightning killed 4 cows.
MASSACHUSETTS Barre, Wor- chester County	11	4 p.m.	**660	200- 70	0	0	2	1	Tornado and funnels aloft	Longer path visible at tree-top level, about 2 miles long. No rain or hail reported by farmer who saw funnel. Hail fell in other areas nearby. Path began about 3 miles north- west of town center. This apparently developed from one of group of 5 funnels aloft sighted in area. Storm moved eastward.

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JULY 1958

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MASSACHUSETTS Barre, Wor- cester County	11	4 p.m.	1/2	50	0	0	3	1	Tornado and hail	Tree-top damage. Marble-sized hail reported in vicinity. Tornado path 1/2 mile north of town center. Storm moved eastward.
MASSACHUSETTS Worcester, Wor- cester County	11	4:45 p.m.			0	0			Funnel aloft	Funnel aloft short-lived; dipped half way to ground in vicinity of Worcester. Reported by airline pilot.
COLORADO Colorado Springs, El Paso County	11	5 p.m.					5		Hail	Destructive hail struck downtown business section, causing heavy damage to neon signs, a greenhouse, windows, etc. Neon sign damage estimated be- tween \$70,000 and \$80,000 and \$3,500 to roof of greenhouse, besides many minor losses. Most hail ice-cube size. Storm moved southeastward.
MASSACHUSETTS Bedford to Lexington, Middlesex County	11	5 p.m.	1-1/2	25	0	0	5		Tornado, wind, hail, and electrical	Discontinuous and curved path of damage, be- ginning at Hanscom Airport, Bedford, and end- ing at farm across Lexington town line. Exist- ence of visible funnel doubted, but evidence of vortex definite. Automobile windshields popped out. Airplanes lifted from moorings, with great damage. Explosive force of vortex pressure reduction felt by observer at farm. Rotary winds indicated by debris distribution when vortex struck and demolished farm build- ings and tree after earlier, strong squall winds had subsided, and while winds light nearby. Hailstones 1/4 to 3/4 inch nearby. Much lightning in vicinity with some damage. St. Elmo's fire and unusual static electricity phenomena seen at Airport. No electrification of vortex itself seen at farm, however. Ro- tation in clouds later observed by meteor- ologist in Cambridge with estimated 115 m.p.h., speed of rotation and some funnel development. Storm moved east-southeastward.
CONNECTICUT	11	5-8 p.m.				3	4	1	Electrical, hail, and rain	Widespread thunderstorms concentrated damage in greater Hartford and Bridgeport areas. Pre- cipitation of up to 2 inches accompanied height of storm between 5 and 7:30 p.m., in and south of Hartford, causing much street flooding. Road washouts reported near Bris- tol, with damage estimated at \$10,000. 9 homes and buildings struck by lightning in Hartford area and similar number in Bridgeport area, with minor damage reported in each case. Light- ning strike on new home at West Haven caused freakish accident to 2 men--while wiring home during storm, 1 man had clothes "ripped" off and suffered severe burns; second man knocked across room by bolt, but otherwise unharmd. 2 persons injured in automobile accident on slick highways in northeast. Small hail near Farmington damaged home gardens and flowers.
KENTUCKY Campbell County	11	6-6:30 p.m.			0	8	5		Tornado	Tornado developed on Ohio side of Ohio river and moved southeastward into northern Kentucky and then apparently dissipated. Numerous trees uprooted, windows blown out, automobiles over- turned, roofs lifted off and automobiles crush- ed under trees. Billboards leveled and an incinerator damaged. Numerous boats on river received some damage. Storm described as "big black, roaring whirlpool" by observer. Another observer reported "it sounded like 10 freight trains."
OHIO Cincinnati, Hamilton County	11	6:07 p.m.			0	0			Tornado	Small tornado developed short distance west of Cincinnati, moved eastward and touched lightly at Public landing on the river, then moved across river into Kentucky.
OHIO Findlay (15 miles west of), Hancock County	11	6:07 p.m.			0	0			Funnel aloft	
MISSOURI Bolivar, Polk County	11	6:25 p.m.			0	0			Funnel aloft	
COLORADO Fremont County	11	7:30-8 p.m.					4	3	Hail	Hail up to 2 inches in diameter hit area around Penrose, denting cars, breaking windows, damag- ing roofs and crops. Storm moved southeastward.
ILLINOIS Mattoon to Charleston, Coles County	11	7:55 p.m.	10	30	0	2	4		Tornado	Damage to about 6 farmsteads from east of Mattoon to south of Charleston. 2 minor injuries. Tor- nado moved east-southeastward.

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JULY 1958

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COLORADO Las Animas County	11	8 p.m.				2	4	4	Hail and rain	Severe hailstorm and heavy rain in vicinity of Thatcher, caused much property and crop damage. Hail, some as large as baseballs, destroyed roofs and windows, damaged buildings and cars. 2 women injured when struck by hail. Some cattle bruised. Heavy rain caused Timpas Creek to flood, causing some water damage to property at Roberta. Some of Santa Fe Railroad track washed out. Storm moved southwestward.
KANSAS Cherokee County	11	8:30 p.m.			0	0			Funnel aloft	Sighted momentarily aloft, quite high, near Baxter Springs.
MISSOURI Mansfield, Wright County	11	8:45 p.m.			0	0			Funnel aloft	
MISSOURI Springfield (west and east of), Greene County	11	9:30 p.m.			0	0			Funnels aloft	2 funnels observed.
MISSOURI Jasper, Jasper County	11	10 p.m.			0	0			Funnel aloft	
OKLAHOMA Nowata and Ottawa Counties	11	10 p.m.			0	0	1	1	Tornado and funnel aloft	Storm moved eastward. Funnel sighted on ground east of Lenapah. No damage reported. Later sighted as funnel aloft over Miami in Ottawa County.
MISSOURI Forsyth, Taney County	11	11:25 p.m.			0	0			Funnel aloft	Observed moving eastward.
ARKANSAS Huntsville, Madison County	11	11:26 p.m.			0	0			Funnel aloft	Reported by Ground Observer Corps.
MISSOURI Stotesbury, Richards, and Deerfield, Vernon County	11	Night			0	0	1		Funnel aloft and wind	Tree blown over and fell on front porch.
ARIZONA Gila Bend, Maricopa County	11				1		1	1	Heat	Man died of heat prostration.
ARIZONA Phoenix, Maricopa County	11				1		1	1	Heat	Man died of heat prostration.
OHIO Hillsboro (near), High- land County	11				0	0			Tornado	Barn damaged.
	11									Minor storms also reported in Phillips County, Ark.; in Boone and Polk Counties, Iowa; at Hagerstown, Md.; at Carrollton, Carthage, Elsberry, Excelsior Springs, Mt. View, Norborne, Polo, St. Joseph, Warrensburg, and Weston, Mo.; at Bluejacket, Spavinaw, and Welch, Okla.; and at Gause, Tex.
MISSOURI Vernon County	11-12	5 p.m.- 3 a.m.					4	5	Wind, rain, electrical, and hail	Many windows blown in and chimneys and roofs damaged. Heavy damage to trees.
ARKANSAS Washington County	11-12	11 p.m.- 4 a.m.	30	*4	0	1	5	4	Rain, hail, wind, and funnels aloft	Wind damage in strip from near Oklahoma State Line through Fayetteville to near Baldwin. Property damage includes \$10,000 due to wind, \$50,000 to hail, and \$75,000 to rain. Crop damage: \$20,000 due to hail and \$5,000 to rain. Extensive damage due to flash floods in Fayetteville. 1 person injured when car was flooded. Funnel clouds aloft observed to southwest of Fayetteville. Storm moved south-eastward.
	11-12									Minor storms also reported at West Plains, Mo.; and Grove, Okla.
ARKANSAS Logan County	12	4 a.m.					4	3	Wind and hail	Wind and hail damage over wide area, including City of Booneville. Storm moved southward.
ARKANSAS Glenrose com- munity, Hot Spring County	12	7:45 a.m.			0	0			Funnel aloft	Reported by bus driver.

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OHIO Lockbourne (7 miles south- southwest of), Franklin County	12	10:23 a.m.			0	0			Funnels aloft	
MONTANA Fort Peck, Valley County	12	Noon	1	*1			2	2	Hail	Hailstones to 1-1/4 inches in diameter broke windows.
FLORIDA Clearwater Beach, Pinel- las County	12	2 p.m.			3				Electrical	3 persons killed on beach during storm.
OKLAHOMA Tonkawa, Kay County	12	2-3 p.m.	3	*1					Hail	Severe hailstorm caused extensive damage in southeastern part of Tonkawa. Gardens stripped of foliage, and glass windows broken in many homes along with heavy roof damage. College buildings received damage estimated at \$10,000. Light but numerous automobile claims also reported. Storm moved eastward.
OKLAHOMA Jefferson, Grant County	12	2:25- 2:30 p.m.	1/4	30	0	0	3		Tornado and hail	Tornado funnel touched ground briefly 1/2 mile east of Jefferson, but no damage reported. Hail ranged from golf-ball to baseball size and covered large portion of ground. Storm moved northeastward.
OKLAHOMA Pond Creek (southwest of), Grant County	12	2:30 p.m.	4	*2			3		Wind, rain, and hail	Hail 2 to 3 inches in diameter covered ground and destroyed 70 acres of alfalfa; roof of farm buildings damaged in area. Storm moved southeastward.
MONTANA Bainville (north and east of), Roosevelt County	12	3 p.m.	3-1/2				1	5	Hail	Hailstones up to 1/2 inch. Storm moved south- eastward.
OKLAHOMA Payne County	12	3-4:30 p.m.					4		Wind, rain, and electri- cal	Strong winds estimated at 65 to 90 m.p.h., caused widespread damage to trees, utilities, buildings, etc., throughout county. At Lake Carl Blackwell, boats piled up, boathouses overturned, and buildings unroofed. At Stillwater, Oklahoma State University's football field press box had windows broken and part of roof blown away. At Perkins Corner, bus station blown away. In Cushing, drive-in theater screen flattened. Storm moved southeastward.
OREGON Umatilla County	12	3-4 p.m.					3	5	Wind and hail	From 10 to 50 percent of grain remaining unharvested over considerable area shattered by high winds and locally severe hail. Damage by wind \$400,000; by hail \$100,000. Storm moved eastward.
KANSAS Seward County	12	3:10- 3:30 p.m.	2	*1			5		Hail	For period of 10 minutes, hail mostly size of baseballs, some 6 inches in diameter and a few described as jagged pieces of ice, fell over small area in and near Liberal. Roofs, windows, and cars were worst damaged. Storm moved southward.
NORTH DAKOTA Williston, Williams County	12	3:40 p.m.			0	0			Funnel aloft	Small funnel cloud.
COLORADO Larimer County	12	Afternoon				1			Electrical	Greeley man struck by bolt of lightning while fishing on Rattlesnake Reservoir west of Loveland. He was unable to hear after accident and also suffered burns on his feet.
KANSAS Morton County	12	Afternoon			0	0			Funnel aloft	Observed about 10 miles southwest of Richfield; lasted only a few minutes.
MASSACHUSETTS and NEW HAMPSHIRE	12	Afternoon				1	4	2	Electrical, wind, rain, and hail	Thunderstorm winds felled trees and washing rains caused losses in southeastern New Hampshire. Localities in northern and central Massachusetts also hit, with most damage due to lightning. 2 boys struck at Stow, 1 injured. Cow killed at Ware. Fires set by lightning. Hail up to 1/2 inch in some central Massachusetts areas.
OKLAHOMA Haskell area, Muskogee County	12	4 p.m.			0	0			Funnels aloft	2 funnels sighted in area west and southwest of Haskell.

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JULY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
OKLAHOMA Drumright, Creek County	12	4:15 p.m.					3		Wind	Winds estimated at 60 to 70 m.p.h., damaged church building, trees, powerlines, TV antennas, and roofs.
NEW YORK New York City and Long Island area	12	Late afternoon			7				Electrical	Severe thunderstorms with lightning in New York City area. 3 youths killed by bolt of lightning; man and woman electrocuted by wind-downed high voltage wire; farmer struck, while working in field; youth killed by bolt, while rowing a skiff.
KANSAS Wallace County	12	5-5:15 p.m.	15	*15			3	4	Hail	Hailstones from 1/2 to 1 inch in size fell for 15 minutes in area from the Colorado line north-eastward to 5 miles northeast of Sharon Springs. Wheat damaged 30 to 50 percent. Roofs pounded and windows broken. Storm moved northeastward.
OKLAHOMA Beggs and Okmulgee, Okmulgee County	12	5-6 p.m.					4		Wind and electrical	Winds estimated at 70 to 75 m.p.h., caused 1 farm home to be partly blown away at Beggs and other outbuildings on farms damaged northeast of Okmulgee. Roof damage to many homes. Power- and telephone lines blown down. Plate-glass windows in business houses blown out. Trees uprooted. Several boats on Lake Okmulgee capsized. Horse killed by lightning. Other scattered wind damage in Okmulgee County. Storm moved southeastward.
IOWA Franklin County	12	6 p.m.							Rain	Flooded basements and damaged highways.
OKLAHOMA Delaware County	12	6:15 p.m.			0	0			Funnel aloft	Civil Defense reported funnel 10 miles west of Siloam Springs, Ark.
INDIANA Connersville (5 miles north of), Fayette County	12	6:35 p.m.			0	0			Funnel aloft	Observed moving southeastward.
INDIANA Indianapolis, Marion County	12	7 p.m.			0	0			Funnels aloft	2 funnels observed moving east-southeastward.
TEXAS Pampa, Gray County	12	7 p.m.				1	4		Wind	Winds estimated at 70 to 75 m.p.h., blew over 5 house trailers, blew several others off blocks. Roof blown off small fruit stand and barn; 2 plate-glass windows and 2 glass panel doors blown out; kiddieland park damaged, also partly constructed store. Limbs and T.V. antennas blown down all over town. Injury minor.
OKLAHOMA Haworth, McCurtaim County	12	8:25 p.m.			0	0			Funnel aloft	
INDIANA Indianapolis, Marion County	12	7:05 p.m.			0	0			Funnel aloft	Observed moving east-southeastward.
INDIANA Marion, Grant County	12	8 p.m.			0	0			Funnel aloft	
INDIANA Ft. Branch, Gibson County	12	9:27 p.m.			0	0			Funnel aloft	
INDIANA Anderson, Madison County	12	10:32 p.m.			0	0			Funnel aloft	Observed moving eastward over south edge of Anderson.
OKLAHOMA Sallisaw, Sequoyah County	12	P.m.				1			Wind and electrical	Winds, estimated at 70 m.p.h., damaged powerlines, trees, signs, and roofs. Man received minor injuries when struck by lightning.
OKLAHOMA Port Tandy on Grand Lake, Craig County	12	P.m.					4		Wind	Very strong winds turned huge 40-ton steel boat dock upside down and beached it at Port Tandy, about 1 mile south of Ketchum. Several large cruisers also damaged. In town of Ketchum, buildings suffered structural damage and trees broken off.
WYOMING Upton, Weston County	12	Evening					4		Wind	
TEXAS McLean (south and west of), Gray County	12	Late evening	12	*5				5	Hail	Heavy damage to cotton and grain sorghums. Storm moved southwestward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
ARIZONA Phoenix, Maricopa County	12				2		1	1	Heat	2 men died of heat prostration.
MARYLAND Metropolitan Baltimore area	12						4		Lightning and rain	Fire caused by lightning destroyed barn on Baltimore County farm. In suburban Baltimore districts, lightning struck several dwellings and other buildings but with minor damage. Downpours associated with heavy thunderstorms caused flash flooding of many homes and base- ments.
WASHINGTON Northeastern portion	12				2		3		Electrical and wind	Several forest fires started by lightning. Powerlines damaged by wind. 2 fishermen drowned when their boat capsized on O'Sullivan Lake.
	12									Minor storms also reported in Messard community, Ark.; in Douglas, Stevens, and Traverse Counties, Minn.; at Belton and Bogard, Mo.; at Rushville, Nebr.; at Bristow, Chandler, Checotah, Cleve- land, Covington, Dustin, Eufaula, Hartshorne, Hennessey, Kingfisher, Marshall, Wecker, Okemah, Pawnee, Sapulpa, Stigler, Stroud, Talihina, and Weleetka, Okla.; and in Capitol Hill com- munity, at Ripley, and Winchester, Tenn.
	12-13									Minor storm reported at Tullahoma, Tenn.
NEBRASKA Ainsworth (13 miles north- west of), Brown County	13	1:30 a.m.	Short	Narrow	0	0	3	1	Tornado	
LOUISIANA New Orleans, Orleans Parish	13	1:38 p.m.			0	0			Waterspout	Reported over Lake Pontchartrain.
INDIANA Pendleton, Madison County	13	2:06 p.m.			0	0			Funnel aloft	
COLORADO Salida, Chaffee County	13	Afternoon			0	0	3		Dust devil	Hit greenhouse, tearing out ventilators and breaking glass in 5 greenhouses; also over- turned trailer house.
NORTH CAROLINA Mecklenburg County	13	4 p.m.					3		Wind	Outbuildings, power-and telephone lines damaged in Charlotte area. Gusts to 55 m.p.h., reported.
MISSISSIPPI Gulfport (2 miles south of), Harrison County	13	5:25 p.m.			0	0			Funnel aloft	Over Mississippi Sound; incipient waterspout.
NORTH CAROLINA Davidson County	13	6 p.m.			1				Electrical	Boy found dead on golf course during thunder- storm, believed killed by lightning.
SOUTH DAKOTA Spink and Brown Counties	13	6 p.m.	10	*5				5	Wind and hail	Mellette to Brentford along Highway 20 with other strips as far north as Warner scattered over area of about 200 square miles. Storm moved southeastward.
NORTH DAKOTA Sargent County	13	6:30 p.m.			0	0	4	1	Tornado	Demolished barn and chickenhouse and broke trees.
SOUTH DAKOTA Chamberlain area, Brule County	13	7:15 p.m.					4	5	Hail	Most damage in southern part of town. Hail- stones size of hens' eggs. Storm covered area from 4 miles west of town to 11 miles east and about 11 miles south. Small grain hardest hit.
KANSAS Gray, Finney, and Ford Counties	13	7:55- 9:35 p.m.			0	0			Funnels aloft	Funnel clouds (5) sighted in various places over these counties: at 7:55 p.m., 2 funnels northeast of Garden City airport traveling east-northeastward; 8:15 p.m., funnel observed 10 miles north of Cimarron; 8:37 p.m., another observed 18 miles north and 3 miles east of Dodge City; 9:35 p.m., funnel reported 5 miles southwest of Dodge City.
MISSOURI Nevada area, Vernon County	13	8:45- 9:15 p.m.			0	0	4		Tornado	First hit farm 5 miles west of Nevada. Moved to farm 1/4 mile east, lifted just west of Nevada, dipped briefly just east of Nevada. Temperature in Nevada dropped from 84° to 70° at 8:45 p.m.
IOWA Johnson, Cedar, and Muscatine Counties	13	9 p.m.				1	3	5	Hail	Hail destroyed croplands; hail, wind, and rain damaged houses. Woman cut by flying glass.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Butler, Bates County	13	9 p.m.			0	0			Funnels aloft	
VIRGINIA Brunswick and Dinwiddie Counties	13	9 p.m.	50					4	Hail	Hailstorm moved from near Brunswick through Lawrenceville, northeastward into Dinwiddie County, leaving 20 to 80 percent crop losses. Loss high, tentative estimated crop damage \$20,000. Storm moved northeastward.
KANSAS Crawford and Labette Counties	13	10:30 p.m.			0	0			Funnels aloft	2 funnel clouds sighted, 1 near McCune and the other 12 to 14 miles northwest of Girard near Walnut.
KANSAS Rush County	13	11 p.m.	2-1/2	25	0	0	3		Tornado	Small tornado struck barn and shed on farm 4 miles east of La Crosse. Funnel cloud seen 2-1/2 miles southwest of damaged location, cloud lifted after hitting shed. Tornado moved northeastward.
TENNESSEE Giles County	13	P.m.							Hail and electrical	At Pigeon Roost community, lightning struck and killed cow. In Elkton area and at Wales, tobacco crop damaged by hail.
TENNESSEE McKenzie, Carroll County	13						4	1	Electrical	10-year old brick church ignited by lightning and destroyed.
TENNESSEE Sidonia com- munity, Obion County	13						4	1	Electrical	Lightning ignited and destroyed sawmill, about 1,500 feet of lumber and considerable equipment.
ILLINOIS LaSalle County	13-14	Midnight- 10 a.m.					6		Rain	Very heavy downpours over southern half of County began just before midnight and continued until 10 a.m., causing heavy flash flooding. Peak rainfall of 8.77 inches in 11 hours at Ottawa. LaSalle-Peru area had 5.50 inches and Streator 6.00 inches. Explosion with \$1 million damage, 5 deaths, and 10 injuries at Streator may have been caused by sewer gas forced out of storm drains by rising water.
	13									Minor storms also reported at Culdesac, Lewiston, and Lewiston Orchards, Idaho; in Pawnee County, Kans.; at Northorne and in Clay, Polk, and Roseau Counties, Minn.; at Warrensburg and Waynesville, Mo.; near Arcadia, Nebr.; and in Caswell County, N. C.
MINNESOTA St. Paul (15 miles east of), Washing- ton County	14	4:30 a.m.			2	0	2		Wind and electrical	Light plane crashed during thunderstorm which moved eastward.
OKLAHOMA Oklahoma City, Oklahoma County	14	9:20 a.m.							Wind	Scattered damage to roofs, trees, and signs in Oklahoma City area as result of very strong straight-line winds reaching peak gust of 82 m.p.h. Storm moved northwestward.
DELAWARE Claymont, New Castle County	14	12:30 p.m.			0	0	3		Tornado, water- spout, and rain	Freak twister associated with reports of water-spout over Delaware River hurtled lawn furniture, awnings, clothes, and other objects through air. 25 by 10-foot porch, weighing 500 pounds, blown against house trailer in Claymont trailer park. Tornado-like storm accompanied by some light rain. 1 report described storm as dark, whirling cloud "like a finger" dip down into river between Claymont and Wilmington. It appeared to move up-river for about 3 minutes and then disintegrated.
WISCONSIN Prairie Farm, Barron County	14	1 p.m.	1	75	0	0	4	0	Tornado	Tornado moved eastward.
PENNSYLVANIA Philadelphia, Philadelphia County	14	2 p.m.	1	25	0	0	3	1	Tornado	Several buildings, trees, and lawn and porch furniture damaged. Storm moved eastward.
WISCONSIN Rest Lake, Vilas County	14	2 p.m.					4	1	Hail, wind, rain and electrical	Associated hail damage of \$10,000 included.
MISSOURI Eaglesville and Blythedale, Harrison County	14	2:05 p.m.			0	0			Funnels aloft	2 funnels observed, 1 near Blythedale and 1 near Eaglesville. Reported by pilot of aircraft.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NEW JERSEY Camden and Burlington Counties	14	2:30- 3:30 p.m.	5-1/2	20	0	0	4		Tornado	Confirmed tornado hit Pennsauken Township, Camden County, and touched ground again in Moorestown Township, Burlington County. 3 houses, 2 garages (1 brick), and large cinder-block chickenhouse damaged. Chickenhouse, 90 feet long and 2 stories high, completely demolished. Funnel observed. Tornado moved east-northeastward.
WISCONSIN Mercer, Iron County	14	2:45 p.m.	25	250	0	0	5	1	Tornado, wind, and hail	Damages include hail \$10,000 and wind \$5,000 losses. Storm moved southeastward.
MISSOURI Trenton, Grundy County	14	3 p.m.			0	0			Funnel aloft	
WISCONSIN Medford (near), Taylor County	14	3:15 p.m.			0	0			Funnel aloft	Observed moving southeastward.
GEORGIA Hartwell (4 miles south of), Hart County	14	3:44 p.m.			0	0			Funnel aloft	Pilot reported funnel-shaped cloud moving north-eastward.
IOWA Adams and Taylor Counties	14	5:55 p.m.	15	100	0	1	5	4	Tornado	Moved from near Prescott to near Lenox. Several farmsteads damaged and 2 houses destroyed. Man injured when lifted into air and dropped. Tornado moved southward.
IOWA Tama County	14	7:50 p.m.			0	0	4	3	Tornado (suspected)	Damaged several homes, farm buildings, and crops. Tornado moved southward.
INDIANA Lawton (5 miles southeast of), Pulaski County	14	8:30 p.m.				1	1	1	Electrical	Man shocked by lightning.
MISSOURI Lancaster, Schuyler County	14	8:55 p.m.			0	0			Funnel aloft and electrical	Vivid lightning.
MISSOURI St. Joseph area, Buchanan County	14	9:01 p.m.			0	0			Funnels aloft	3 funnels observed, 1 west and 2 20 miles northwest of St. Joseph.
COLORADO Arkansas Valley	14	10 p.m.					4	2	Hail	Hail reported in scattered areas of Valley. At Sugar City, hail damaged neon signs and crops. North of Lamar, large stones (some measuring 7 inches around) damaged cars and buildings.
MICHIGAN Southwestern portion	14	Evening				3	4		Hail, electrical, wind, and rain	Damage mostly from hail and lightning. 1 injury in Kalamazoo County. 2 injuries in Van Buren County, all from lightning strikes.
ILLINOIS South-central portion	14	Evening					4		Wind	Scattered report of damage during severe thunderstorms in area from Quincy and Alton eastward to Danville and Newton.
MISSOURI Albany, Gentry County	14	Late evening					4		Rain and wind	3-1/2 inches of rain fell in brief time. Local flooding of small streams. Many basements flooded. Heavy wind damage to trees.
IOWA North-central and northeast- ern portions	14						4	4	Hail and wind	Damage from hail and strong wind at scattered points.
	14									Minor storms also reported in Emmett, Payette, and Weiser areas, Idaho; at Bonita and near Lakin, Kans.; near Fosston and in Dodge and Faribault Counties, Minn.; at Bayard, Cape Girardeau, Kahoka, Mexico, and Unionville, Mo.; and at New Kensington, Pa.
MISSOURI Shelby, Lewis, Schuyler, Ralls, and Marion Counties	14-15	5 p.m., 14th -noon 15th			0	0	5	4	Rain, wind, and funnels aloft	Over 4 inches of rain at Shelby and Shelbyville. High winds and over 4 inches of rain at Conton. Wind damage in LaGrange-Spalding area to crops. Over 4 inches of rain at New London. Flooding of small streams. Rain at Hannibal amounted to 4.57 inches. Funnel cloud sighted north of Lancaster at 8:45 p.m., and 1 sighted north of LaBelle at 9 p.m. High winds and over 4 inches of rain at Palmyra. Crops damaged by flooding.
MISSOURI Chillicothe, Livingston County	14-15	Evening- early morning					2	4	Rain	7.16 inches of rain fell in 24 hours at Radio KCHI near Chillicothe. Flooding of lowlands.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1956

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Hannibal, Marion County	14-15	Night					4	3	Rain	1.75 inches of rain in about 30 minutes. Local flooding of creeks, and basements flooded.
KANSAS Barton, Rice, Reno, McPherson, and Harvey Counties	15	2-4 a.m.	75	*25	0	0			Wind and electrical	Severe winds with gusts to 65 m.p.h., at Hutchinson caused tree and wire damage at a number of places. 2 horses killed by lightning south of Sterling. Also several farm buildings near Burrton damaged by winds. Storm moved south-eastward.
KANSAS Shawnee County	15	6:10 a.m.							Wind	Wind gusts of 58 m.p.h., caused fresh outbreak of damage to trees and electric service lines, some resulting from trees weakened in storm of July 11. A number of transmission lines of high voltage broken in and near Topeka.
MISSOURI Kansas City and Liberty, Jackson and Clay Counties	15	7-8 a.m.				6	5		Wind	Heavy wind damage to windows, stores, homes, and trees. Winds hit 63 m.p.h.
MISSOURI Richmond, Ray County	15	7:30 a.m.			0	0	5	4	Tornado and rain	Buildings on several farms heavily damaged. Heavy damage to trees and crops. Many power- and phone lines downed. Heavy rain accompanied storm.
IDAHO Coeur d'Alene, Kootenai County	15	12:30 p.m.			0	0	2		Tornado	Twister coming from northeast took good-sized section of roof off patio and dropped it in front yard. Some iron pipe bracing roof torn up and others bent.
PENNSYLVANIA Beaver and Butler Counties	15	2 p.m.				3	4	1	Wind	3 persons injured when 5 house trailers near Zelienople toppled by high winds. Roof and tree damage also considerable. Storm moved eastward.
COLORADO Trinidad Air- port, Las Animas County	15	3:11 and 5:30 p.m.							Hail	Pilot reported hail, greater than 1 inch at Trinidad at 3:11 p.m. At 5:30 p.m., pilot reported 2 inch hail over Trinidad at 12,000 feet.
ILLINOIS Greenup, Cumberland County	15	3:30 p.m.			2	1			Electrical	3 persons struck by lightning while standing near disabled automobile.
ALABAMA Mobile County	15	Afternoon			1		1	1	Electrical	Man killed by lightning when dragging disced field with iron bar attached to tractor.
MISSOURI St. Louis County	15	Afternoon					5		Rain and electrical	Heavy rain. Flooding in southern part of St. Louis. Many basements flooded. Power cut off from 15,000 homes.
NORTH DAKOTA Sheridan County	15	4:15 p.m.			0	0			Funnel aloft	Funnel went back into cloud.
OHIO Dayton (10 miles north- east of), Montgomery County	15	Late afternoon			0	0			Funnel aloft	
INDIANA Milroy (4 miles north- west of), Rush County	15	6 p.m.				2			Electrical	2 men struck by lightning while unhooking tractor from hayrake.
INDIANA Anderson, Madi- son County	15	6:45 p.m.					4	1	Wind	Huge section of factory wall was collapsed by high winds.
INDIANA Muncie, Dela- ware County	15	6:50 p.m.					4	1	Wind	Factory was partially unroofed. Nearby buildings damaged by strong local winds.
INDIANA French Lick, Orange County	15	8:31 p.m.			0	0			Funnel aloft	Pilot report.
NEW MEXICO Portales (4 miles north- west of), Roosevelt County	15	8:45 p.m.			0	0	1	1	Tornado (suspected)	Tornado reported, but unable to obtain any confirmation.
NEW MEXICO Roswell (30 miles east of), Chaves County	15	8:45 p.m.			0	0	1	1	Tornado (suspected)	Unable to confirm.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
INDIANA La Fontaine, Wabash County	15	9:40 p.m.					5	1	Electrical	Grain elevator burned after being struck by lightning.
TEXAS Vega (15 miles north of), Old- ham County	15	11:20 p.m.	5		0	0	2	1	Tornado	Moved eastward over open ranch country; 150 feet of fence line blown down.
NEW MEXICO Dexter and vicinity, Chaves County	15	P.m.							Hail	Damage to cotton and alfalfa fields.
FLORIDA Tampa, Hills- borough County	15	Evening				4			Electrical	4 Air Force men injured by lightning.
PENNSYLVANIA Southeastern portion	15	Night					4	1	Electrical and wind	Lightning fired several houses and barns, while wind caused only minor damage in area. Power interrupted for a time in many localities. Storm moved eastward.
	15									Minor storms also reported near Vistula, Ind.; near Hill City, Kansas City, and Tecumseh, Kans.; at Clinton, Cuba, Eldon, and Elkhorn, Mo.; near Wahoo, Nebr.; and in Wood County, W. Va.
MISSOURI Fredericktown, Madison County	15-16	Noon 15th- 9:15 a.m., 16th			0	0	3		Rain	Rain amounted to 2.58 inches at Fredericktown between noon on 15th and 9:15 a.m., on 16th. Roofs damaged, TV aerials downed, and large trees uprooted. Funnel cloud southwest of town.
MISSOURI Linn County	15-16	Night- early morning					4	4	Rain	At Brookfield, rainfall amounted to 8.74 inches. 14 homes evacuated. Lowland crops destroyed by rains and floods. Train halted and derailed by washout in western Linn County. Red Cross set up emergency headquarters and over 40 persons displaced. Highways 11 and 36 closed. High water forced motorists off highway who escaped drowning by rescue through car windows.
OREGON Scattered areas	15-19	Afternoons and evenings					5	5	Electrical, hail, wind, and rain	Severe lightning, which in course of 5 days struck at many points in south and northeast started scores of grass fires some of which burned over many hundred acres of range land; also started a number of small forest fires and fires in wheat fields and in some buildings. Most forest fires extinguished before covering more than 1/4 acre and none caused extensive damage. In Umatilla County, several hundred acres of wheat and over 50 acres of barley destroyed by lightning-set fires. In Hart Mountain Antelope Refuge, hailstones up to 2 inches in diameter reported, but due to very sparse vegetation little damage done. Near Bandon, large arrow wood mill destroyed by lightning. In central, several head of sheep killed when lightning struck tree under which they had taken refuge. Damage by lightning \$185,000; by wind \$35,000; by rain \$5,000; by hail negligible.
NEBRASKA Bridgeport, Morrill County	16	1:07 a.m.					5	1	Electrical	Large power transformer struck and burned out.
KANSAS Reno and Sedgwick Counties	16	4-6 a.m.					4		Electrical	Lightning struck high school building at 5:15 a.m., following ventilator from roof to basement. Some damage resulted from fire. 2 lightning strikes in Hutchinson caused interruption of electric service to some areas. In Wichita, lightning set off fire alarm.
TENNESSEE Cross Plains, Robertson County	16	8:30 a.m.						1	Electrical	Lightning ignited and destroyed large stock barn. Damage included some machinery and an adjoining tool shed.
COLORADO Northeastern portion	16	2:40- 4:38 p.m.			0	0			Funnels aloft and tornado	Tornado touched ground 40 miles southwest of Akron. 3 funnel clouds observed: 40 miles southwest of Akron at 2:40 p.m.; 30 miles northeast of Denver at 3:37 p.m.; and 30 miles northeast of Lowry at 4:38 p.m. Several other funnel clouds reported between Denver and Cheyenne.
COLORADO Weld and Pueblo Counties	16	Afternoon					4		Tornado (sus- pected), rain, and wind	Heavy rain accompanied by high wind damaged property and crops in Platville and Greeley areas. Approaches to bridge damaged and high water entered basements. Evidence of tornado

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
COLORADO (Cont'd.)										in a corn field. In southwestern portion of Pueblo, high wind uprooted trees, one fell on parked car causing considerable damage. Heavy rain accompanied storm.
MASSACHUSETTS	16	Afternoon				1	4	1	Electrical, rain, and wind	Thundersqualls brought heavy, washing, and flooding rains to several areas, especially in Pittsfield area of Berkshires and in Millbury to Plymouth area. Few trees felled by wind. Several homes damaged by lightning. 1 person injured by lightning at Millbury and bull killed at Milford.
MASSACHUSETTS Hopedale, Worcester County	16	5 p.m.	Short	Narrow	0	1	3	1	Tornado	Very small funnel. Damage to 1 garage, 1 home, and several trees. 1 person injured by flying glass. Tornado moved eastward.
ARIZONA Casa Grande, Pinal County	16	5:30 p.m.		330			5	1	Wind and electrical	\$50,000 wind damage and \$5,000 lightning damage. Storm moved northeastward.
MISSOURI Crane and Clever, Stone County	16	9:40- 9:55 p.m.			0	0			Funnel aloft	
MISSOURI Springfield (25 miles south-southwest of), Greene County	16	9:55 p.m.			0	0			Funnel aloft	
MICHIGAN Antrim County	16	Evening	75	200	0	0	1	1	Tornado	Moved northeastward in wooded area, all trees down in path of storm. No witnesses as storm occurred in uninhabited area.
ARKANSAS Woodrow-Cummins Farm area, Poinsett County	16					2	1	1	Electrical	2 men injured by lightning while seeking shelter under tree.
	16									Minor storms also reported at Guntersville, Ala.; near Platville, Colo.; at Eastman, Ga.; at Chanute, Kans.; at Chillicothe, Lebanon, Walnut Grove, and Warrensburg, Mo., near Daykin, Nebr.; in Elkin Township, N. C.; near Cope and Orangeburg, S. C.; at Harriman, Tenn.; in Franklin County, Vt.; and near Kaycee, Wyo.
IDAHO Most of State	16-17				2	4			Rain, hail, wind, and electrical	Widespread thunderstorm activity began on afternoon of 16th and continued through 17th. 3 small boys hit by lightning, requiring hospitalization of 2, while sitting under tree in vicinity of Butte City. Gusty winds in Boise knocked trees down, 1 toppled against residence; 3 planes at local airport banged around, and hay and grain damaged in spots. Near Kamiah, white fir tree crashed down on 15-foot trailer, crushing to death mother and daughter, and requiring hospitalization for father and small son. Flood and hail damage and power companies reported outages general. Lightning believed to have started fire which destroyed shed, garage, and house in Caldwell. Fire, caused by lightning, completely destroyed machine shed on farm in Ten Mile Community, in Kuna area. 75-foot tree at Caldwell fell on car just behind driver, who escaped without injury.
MISSOURI St. Louis (30 miles southwest of), Jefferson County	17	8:50 a.m.			0	0			Funnel aloft	
KANSAS Pottawatomie County	17	Early morning			6	1			Rain	Automobile and truck collided head-on near Wamego. Drivers were blinded by heavy rain.
COLORADO Morgan County	17	5:23 p.m.							Funnel aloft	Funnel cloud sighted 50 miles north-northwest of Akron.
NORTH DAKOTA Pillsbury (6 miles northwest of), Steele County	17	5:30 p.m.			0	0	1	1	Tornado	Funnel cloud touched ground.
MISSOURI Gravois Mills, Morgan County	17	7 p.m.			0	0			Funnel aloft	Observed moving eastward.

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JULY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Versailles (7 miles south of), Morgan County	17	7:35 p.m.			0	0			Funnel aloft	
MISSOURI High Ridge, Jefferson County	17	8:04 p.m.			0	0			Funnel aloft	Observed moving northeastward.
MISSOURI St. Clair, Franklin County	17				0	0			Funnel aloft	Observed moving northward.
WASHINGTON Southeastern Counties	17						3	4	Electrical and wind	Several small grass fires started by lightning. 100 acres of unharvested grain burned. Wind and lightning caused some property damage.
	17									Minor storms also reported near Norton, and at Rantoul, and Russell, Kans.; at Carthage, Kan- sas City, Perryville, and Rolla, Mo.; and near Lorton, Nebr.
MISSOURI Festus, Jeffer- son County	18	1:40 a.m.			0	0			Funnel aloft	
ARIZONA Tucson, Pima County	18	6 a.m.	7	5200			5	4	Rain, and electrical	\$300,000 property damage by rain and \$200 dam- age by lightning. \$35,000 damage to field crops and \$650 to livestock, all by rain. Storm moved northward.
COLORADO Alamosa (2 miles north- west of), Ala- mosa County	18	11:15 a.m.			0	0			Tornado	Tornado touched ground for 7 minutes then dis- sipated. No damage reported. Moved northward.
WYOMING Cheyenne (20 miles west of), Laramie County	18	Noon			0	0	1	1	Tornadoes	2 tornadoes.
COLORADO Weld, Adams, Arapahoe, Den- ver, Jeffer- son, and El- bert Counties	18	Afternoon					4		Rain, hail, and wind	Heavy damage to buildings, roads, crops, etc., caused by series of thunderstorms. Storm seemed to be centered in Prospect Valley and Kiowa vicinities where from 2 to 5 inches of rain driven by high winds reported. Hail accompanied storm in spotted areas. Storm moved southeast- ward.
NEBRASKA Melbeta (southwest of), Scotts Bluff County	18	Afternoon	4	*1				5	Hail	Storm moved northeastward.
WASHINGTON Tonasket Area, Okanogan Valley	18	Afternoon					4		Rain	Heavy rain damaged roads, bridges, and a few residences in low areas.
MONTANA Simms-Great Falls area, Cascade County	18	3:45 p.m.	20	880			5	4	Hail	Hailstones 1/2 to 7/8 inch in diameter. Damage over path spotted, worst in east end of Great Falls in 1/2 x 1/2-mile area. Storm moved north- northeastward.
NEBRASKA Grant (north and west of), Perkins County	18	4:55 p.m.	Short	Narrow	0	1	4	3	Tornado, wind, and rain	
NEBRASKA Ogallala (south and west of), Keith County	18	Late Afternoon	Short	Narrow	0	0	3	2	Tornado	Set of farm buildings damaged.
MONTANA Choteau County (western por- tion)	18	5 p.m.	40	*1			1	4	Hail	Hailstones up to 3/4 inch. Storm moved north- ward.
NEBRASKA Imperial- Wauneta-Hamlet area, Chase and Hays Counties	18	5:15- 6:30 p.m.			0	0	3	2	Tornadoes and rain	Enders Dam received 5.47 inches, mostly in 1 hour and 15 minutes. Storm moved east-south- eastward.
WYOMING Casper, Natrona County	18	5:36 p.m.			0	0			Funnel aloft	

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
VIRGINIA Pittsylvania County	18	7-8 p.m.					°4		Rain	Heavy rain, classed as cloudburst by residents, poured 3 inches of rain in 1 hour in Danville area. Damage was principally from flash flooding in Grove Park area. Basements flooded, foundations crumbled, and fills washed out. Storm moved eastward.
NEBRASKA Buffalo County	18	10 p.m.- midnight			0	0	5	5	Hail, wind, and tornadoes	Storm moved northeastward.
NEBRASKA Holdrege and vicinity, Phelps County	18	10:20 p.m.	Few	Narrow	0	0	4	3	Tornado	Remained fairly high; damage mostly to roofs. Ripe wheat shattered. Storm moved northeastward.
NEBRASKA Shelton (west and northwest of), Buffalo County	18	10:30 p.m.	Few	Narrow	0	0	5	2	Tornado	Several farm buildings demolished. Barn moved 100 feet, but otherwise undamaged. Large bus lifted from highway and left undamaged in ditch.
NEBRASKA Murphy, Hamil- ton County	18	11:30 p.m.	Few	Narrow	0	0	3	2	Tornado	Tornado moved northeastward.
NEBRASKA Trenton (north of), Hitchcock County	18	Evening					4	3	Hail and wind	
MISSOURI Mexico, Audrain County	18	Night					2	3	Rain and electrical	2.05-inch downpour accompanied by severe lightning caused very little damage, but postponed already late wheat harvest. Sewers overloaded. Temporary stoppage of electric power and only 2 lines down in City. Some flooding in streets. Very little wheat down and almost no damage from rain.
MISSOURI Stanberry, Gentry County	18	Night					3	5	Rain and electrical	4 inches of rain. Swollen streams and some flooding. Damage to crops. Lightning knocked out generator at power plant; power off 40 minutes.
NEBRASKA Butler County (southwestern portion)	18	Night	Short	Narrow	0	0	3	2	Tornado	
NEBRASKA York, York County	18	Night					5	1	Electrical	Country Club house struck and burned.
	18									Minor storms also reported in Coeur d'Alene and Clearwater National Forest, Idaho; at Paris, Mo.; near Chandler, Nebr.; and at Winston-Salem and in Stokes County, N. C.
NEBRASKA Hastings, Adams County	18-19	Night					4	1	Rain	Most damage from flooded basements.
	18-19									Minor storms also reported at Columbus and Talmage and near Dunbar and Macon, Nebr.
COLORADO Logan, Sedg- wick, and Phillips Counties	18-19 -20	Afternoons					°4		Rain, hail and wind	Weekend storms brought heavy rain, hail, and wind. On 18th, over 2 inches of rain fell, and on 19th and 20th, rain accompanied by hail and wind did further damage. Hail broke windows and damaged roofs, cars, and crops. Basements flooded by prolonged rainfall.
INDIANA Evansville, Vanderburgh County	19	1:45- 3:30 a.m.					4	1	Electrical	Lightning and fire damaged lumberyard and house.
SOUTH DAKOTA Rapid City, Pennington County	19	1:45 p.m.					6	4	Hail, and rain	Heaviest damage just south of business district. Hailstones reported up to 3 inches in diameter. Runoff formed drifts of hail up to 4 feet in gutters and ditches. Storm moved eastward.
FLORIDA Lake Ellen, Hillsborough County	19	Afternoon			1				Electrical	1 person killed while swimming.
MAINE Southern portion	19	Afternoon					1		Hail	Considerable hail, some up to 1/2 inch size. No crop damage figures available.
NEBRASKA Banner County (western portion)	19	Afternoon	15	Narrow	0	0	1	2	Tornado and hail	Tornado touched ground briefly in open field; moved southeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
FLORIDA Fort Myers, Lee County	19	3:15 p.m.			0	0			Funnel aloft	Cloud did not touch ground.
ARIZONA Fort Huachuca (15 to 20 miles north- east of), Cochise County	19	3:53 p.m.			0	0			Funnel aloft	
MAINE Clinton, Kennebec County	19	6 p.m.	Short	50	0	0	3	1	Tornado	Very small funnel. 1 set of farm buildings damaged. Tornado moved eastward.
TEXAS Lubbock, Lubbock County	19	6 p.m.	5	*1	0	0	4		Wind and tornado (suspected)	80-m.p.h., wind. Fences downed, lumberyard torn up, outbuildings destroyed, roofs damaged, light poles torn down, and limbs broken. Storm moved northeastward.
CALIFORNIA Susanville, Lassen County	19	7 p.m.					3		Rain, hail, and wind	Thunderstorm, accompanied by gale wind, torrential rain, and hailstones up to 1 inch in diameter. Extensive hail damage to roofs and vegetation on south side of town. Many basements flooded. Storm moved southward.
ILLINOIS Bond, and St. Clair Counties	19	7 p.m.				5	4		Wind, electrical, and rain	5 persons injured by lightning 8 miles west of Greenville. Many trees downed and wind damage to 3 homes or farmsteads. Also heavy rainfall in East St. Louis - Belleville area during evening. Storm moved east-northeastward.
MISSOURI Sedalia, Pettis County	19	7:30 p.m.			0	0			Funnel aloft	Observed moving southeastward.
KANSAS Reno and McPherson Counties	19	7:45-8 p.m.	20	*12					Electrical and wind	Thunderstorm brought many brilliant and sharp flashes of lightning and 82-m.p.h., wind. Wind damage most prominent in Hutchinson where trees and several main electric lines and 250 service lines damaged. Roofs and other parts torn from a number of houses. Large plate-glass windows blown from store fronts. Houses and cars damaged by falling limbs and trees. Wind and lightning damage also occurred at Lindsborg. Storm moved southeastward.
MISSOURI Jefferson City (5 miles north of), Cole County	19	7:50 p.m.			0	0			Funnel aloft	Observed moving northeastward.
MISSOURI Fayette, Howard County	19	Evening				1			Electrical	Lineman on pole shocked by lightning bolt nearby.
MISSOURI De Soto, Jefferson County	19				1				Rain, electrical, and hail	Woman drowned near Barnhart.
	19									Minor storms also reported in southwestern Iowa; at Boonville, De Soto, and Rolla, Mo.; and near Arlington and at Omaha, Nebr.
WYOMING Rawlins (45 miles north of), Carbon County	20	Morning			0	0	1	1	Tornado	
COLORADO Northeastern portion	20	12:09- 1:43 p.m.			0	0			Funnels aloft and tornado	Several funnel clouds observed. At 12:09 p.m., pilot reported 3 funnel clouds east of Black Forest near Colorado Springs, which did not touch ground. At 12:27 p.m., funnel cloud sighted 4 miles southwest of Kiowa and 1 touched ground in northwestern Weld County, but no damage reported. At 1:43 p.m., funnel cloud observed 10 miles northeast of Limon, moving southeastward and not touching ground.
COLORADO Elbert County	20	12:10 p.m.			0	0			Tornado	Farmer reported seeing tornado touch ground once near Elizabeth.
OKLAHOMA Bixby to Broken Arrow, Tulsa County	20	12:30 p.m.			0	0	3		Funnel aloft and electrical	Funnel aloft sighted just west of Bixby and short time later observed 4 miles southwest of Broken Arrow. Lightning struck tree, killing 3 cows. Storm moved northeastward.
GEORGIA Macon, Bibb County	20	1 p.m.			0	0			Funnel aloft	Pilot reported seeing funnel cloud dip out of cloud base and move back in. Did not touch ground.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NORTH CAROLINA Davidson, Forsyth, Mecklenburg, and Wake Counties	20	1-4 p.m.					4		Electrical, wind, and rain	Damage to high tension lines and transformers reported in Thomasville, Winston-Salem, and Raleigh. Trees blown down. Flash floods damaged several homes in Charlotte.
NEBRASKA Scotts Bluff County	20	1-5 p.m.			0	0		4	Hail, rain, and funnels aloft	Severe hail north of Minatare and near Stegall. 6 funnels aloft observed. Storm moved east-southeastward.
NEBRASKA Kimball (north and east of), Kimball County	20	Afternoon					1	4	Hail	Stones 1/2 to 1 inch in diameter.
MINNESOTA Eastern portion	20	3 p.m.			0	0			Funnels aloft	Funnel clouds (5) reported at various points--near McGregor, 25 miles south of St. Cloud, 15 miles northeast of Minneapolis, 70 miles southwest of Minneapolis and 60 miles west-southwest of Rochester, moving eastward.
TENNESSEE South Knoxville and Beardon, Knox County	20	3 p.m.				1		0	Wind and electrical	Lightning caused minor injury to man and damaged 3 houses. Power and phone lines damaged by wind-blown trees.
KANSAS Wallace County	20	4-6 p.m.	4	700	0	6	4	4	Tornado, hail, and dust	About time hail ceased, 4:20 p.m., tornado struck north of Port of Entry building, damaging that building and several others nearby. 2 vehicles overturned by tornado, injuring 4 persons. Some farm machinery also damaged. Hailstones from 1/2 inch to 2-1/2 inches fell over area 11 miles long and 5 miles wide north of Weskan. In duststorm preceding hail and tornado, several car wrecks occurred between Weskan and state line. 2 persons injured. Storm moved southeastward.
NORTH CAROLINA Johnston, Lenoir, and Sampson Counties	20	4-6 p.m.					3	5	Hail	Most damage to tobacco in fields.
TEXAS Sweetwater (2 miles south- west of), Nolan County	20	4:10 p.m.	Short	Narrow	0	0	1	1	Tornado	Touched ground once or twice in pasture, stirring up dust; moved northeastward.
NEBRASKA Benkelman (8 miles north of), Dundy County	20	4:12 p.m.	Short	Narrow	0	0			Funnel aloft	Moved eastward.
COLORADO Washington County	20	4:30 p.m.			0	0	3		Tornado	Tornado destroyed buildings on farm 4 miles north of Platner.
COLORADO Cheyenne County	20	4:30 p.m.			0	5	4		Tornado	Tornado east of Cheyenne Wells tore roof off house, damaging furnishings, destroyed barn and garage, and caused car accidents injuring several persons.
FLORIDA Miami (10 miles north of), Dade County	20	5:15 p.m.			0	0			Funnel aloft	
KANSAS Seward and Clark Counties	20	8:30- 10 p.m.			0	0			Funnels aloft	3 funnel clouds sighted moving east-northeastward; A few miles south of Liberal at 8:30 p.m.; about 9 miles south of Bloom about 8:30 p.m.; and 10 miles south of Bucklin about 10 p.m.
OKLAHOMA McCurain County	20	9-11 p.m.							Wind, rain, and electrical	Strong winds caused widespread damage to windows, trees, signs, etc. Lightning destroyed 2 television sets.
TENNESSEE Bean Station, Grainger County	20	P.m.							Wind and rain	Considerable damage to crops and roads.
NEBRASKA Sidney to Lodgepole, Cheyenne County	20	Evening	15				3	3	Rain, hail, and funnels aloft	Several funnel clouds observed. Hailstones 1/2 to 1 inch in diameter. Storm moved eastward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Poplar Bluff (10 miles southwest of), Butler County	20				0	0			Funnel aloft	Observed moving northeastward.
MISSOURI Springfield, Greene County	20					1			Electrical	Man struck by lightning as he sat under tree; knocked unconscious and saved by artificial respiration.
	20									Minor storms also reported in Hamilton County and near Meade, Kans.; at Dunn, Mo.; near Gandy, Nebr.; at Claremore and Panama, and near Mc- Alester, Okla.; and at Lafayette and Soddy, Tenn.
TEXAS Jefferson County Airport (12 miles east- southeast of), Jefferson County	21	10:15- 10:20 a.m.			0	0			Funnel aloft	
TENNESSEE Spring City, Rhea County	21	11 a.m.				1		1	Electrical	Lightning entered building, causing minor damage to interior and severe injury to 1 woman.
ALABAMA DeKalb County	21	Morning					4	1	Electrical	In Pleasant Grove and Mountain View areas, lightning killed 3 cows, hit church, damaged 2 houses, heavily damaged appliances in several homes and did heavy damage to power-and tele- phone lines.
ARKANSAS Waldrop Valley, Little River County	21	A.m.						1	Electrical	Large barn and 7,000 bales of hay destroyed by fire set by lightning.
MISSOURI Charleston (15 miles southwest of), Mississippi County	21	12:20 p.m.							Funnel aloft	
KANSAS Reno County	21	12:48-1 p.m.			0	0			Funnel aloft	Long telephone-pole-shaped funnel cloud observ- ed suspended from main cloud deck for about 12 minutes. Whirling motion noted in funnel cloud as observed through binoculars. Cross-country motion very slow. Funnel reached half way from cloud deck to ground at 12:55 p.m., then slowly retreated into cloud base. Funnel sighted 3 miles west of Pretty Prairie. Moved northward.
MISSOURI Parma (2 miles east of), New Madrid County	21	1:09 p.m.							Funnel aloft	
MISSOURI New Madrid, New Madrid County	21	1:10 p.m.							Funnel aloft	
MISSOURI Charleston, Mississippi County	21	2 p.m.							Funnel aloft	
COLORADO Colorado Springs, El Paso County	21	Afternoon					5	4	Hail and rain	Heavy rain and hail which flooded streets, dam- aged gardens and crops. Hailstones over 1 inch in diameter and piled up in drifts.
WEST VIRGINIA Jackson, Nicholas, Fayette, Greenbrier, and Monroe Counties	21	Afternoon -evening			2				Rain	Locally heavy rains caused flash floods and landslides. Damage to highways, gardens, houses, bridges, and loss of personal belongings. 2 persons drowned.
TENNESSEE Osage com- munity, Henry County	21	5-6 p.m.							Wind	Strong gusts from south flattened 1 tobacco barn; unroofed or damaged several barns and other outbuildings, extensively; damaged house roofs and windows; uprooted trees; and damaged corn and tobacco crops.
FLORIDA Winter Haven, Polk County	21	6 p.m.	Nar- row	Short	0	0	3		Tornado	1 barn badly damaged on dairy farm. Tornado moved southward.
KANSAS Sherman and Cheyenne Counties	21	6-8 p.m.					3	4	Wind and hail	Damaging wind and hail occurred over southern Cheyenne and much of northern Sherman Counties.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS (Cont'd.)										Hailstones 1/2 to 1 inch in diameter. Local winds damaged trees, roofs, house trailer, and some farm machinery in and near Goodland. Storm moved southeastward.
COLORADO Pueblo County	21	6:30 p.m.			0	0			Funnel aloft, rain, and hail	Funnel cloud observed 30 miles south-southeast of Pueblo. Heavy rain and some hail also.
NEBRASKA Oakdale (south of), Antelope County	21	7-7:30 p.m.	8	*2			2	5	Hail	Stones up to 2 inches in diameter. Ground covered 2 inches deep in center of storm. Storm moved northeastward.
COLORADO Huerfano County	21	Evening			0	0	3		Tornado and funnels aloft	Several funnel clouds observed in vicinity of Walsenburg. On farm 16 miles northeast of Walsenburg several haystacks blown down.
COLORADO Las Animas County	21		20	*3			4	5	Hail	Hail in vicinity of Hoehne damaged grain, corn, and hay fields. Windows broken and many automobiles and roofs battered. Storm moved south-eastward.
TENNESSEE Maury County	21					4			Electrical and rain	Lightning twice struck house in Knob Creek community, causing some fire damage and injuring 2 women. Flash floods caused minor injury to 2 girls, thousands of dollars of damage to county roads, and evacuation of 1 family. Heavy rain flattened numerous tobacco crops and damaged others.
	21									Minor storms also reported in Vernon area, Ala.; in Fayette County, Ky.; at Kahoka, Mo.; and near Sevierville, Tenn.
TEXAS Tyler, Smith County	22	11:45 a.m.-12:45 p.m.	4	700	0	1	3	1	Wind, electric rain, and funnels aloft	Wind estimated to 75 m.p.h., damage in south-eastern part of town. 4-foot diameter tree snapped; uprooted trees, twisted signs, damaged roofs; fibreglass display destroyed, pieces blown several miles away; other minor damage. Heavy rain; 1.87 inches from 11:45 a.m., to 12:15 p.m.; total 2.25 inches by 1 p.m. Lightning damaged home appliances, minor injury to child; moved garage from foundation. 2 funnels sighted at height of storm. Storm moved northeastward.
OHIO Newark (2 miles south of), Licking County	22	1:50 p.m.	3	200	0	0	4		Tornado	Tornado moved east-northeastward through rural section, damaging several buildings in path, including barn which was obliterated. 1-1/2 ton boiler reported moved a distance of about 1/2 mile. No funnel cloud seen, but debris was observed circling around aloft.
OHIO Nashport, Muskingum County	22	1:50 p.m.			0	0			Tornado	Extensive roof damage.
OHIO Hamilton, Butler County	22	Afternoon							Rain	Torrential rain caused serious flooding. 24-hour rainfall 4.90 inches.
OHIO Newcomerstown, Tuscarawas County	22	3:38 p.m.	10	200	0	3	4		Tornado	Unmistakably a tornado, though no funnel cloud observed. Evidence of damage to trees seen for distance of 10 miles, as well as structural damage to house and barns. 1 house completely destroyed and single occupant carried 100 yards and deposited in field with resultant serious injuries. Extensive roof damage to several other buildings in path. Tornado moved east-northeastward.
COLORADO La Junta, Otero County	22	3:41 p.m.			0	0			Funnel aloft	A funnel cloud was observed in west side of thunderstorm.
COLORADO Colorado Springs, El Paso County	22	4:45 p.m.			0	0			Funnel aloft	Funnel cloud observed moving northeastward.
COLORADO Baca County	22	4:45 p.m.			0	0			Funnel aloft	Sighted north of Springfield.
COLORADO Weld and Morgan Counties	22	5:30 p.m.	4	*2				4	Hail	Battering hailstorm destroyed potato crop and 75 percent of corn crop.
TEXAS Hereford, Deaf Smith County	22	5-7 p.m.					5	4	Hail and wind	Damage to roofs, windows, automobiles, and foliage in city. Damage to crops near city. Storm moved northeastward.

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					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS Finney County	22	5:40 p.m.							Wind, hail, and electrical	Wind-driven hail, some soft like snow, and some jagged pieces of ice, about golf-ball size, dented cars, damaged roofs, and stripped leaves and branches from trees in and near Garden City for a few minutes. Lightning damaged spire of church.
KANSAS Grant County	22	6-6:30 p.m.							Wind and hail	Soft hail, some as large as quarters, driven by high wind caused considerable damage to trees, flowers, and crops near Ulysses.
NEBRASKA Clay Center (north of), Clay County	22	6-7 p.m.	5	880			2	4	Hail	Storm moved northeastward.
TEXAS Levelland-Whit- harral, and Anton, Hockley County	22	6-10 p.m.	15- 20	*2-4			°6		Wind and hail	East of Anton, wind of tornadic force, blew away irrigation pump house, including pump and motor. About 5 miles west of Anton, golf-ball-size hail damaged near 10,000 acres of cotton from 75 to 100 percent. Storm moved northeastward.
KANSAS Meade County	22	6:20- 6:25 p.m.	1/2	40	0	0			Tornado	Small tornado seen to touch ground once about 5 miles west of Fowler.
TEXAS Lubbock (15 miles north- west of), Lub- bock County	22	7:15 p.m.			0	0			Tornado (suspected)	
TEXAS Beaumont, Jefferson County	22	7:35 p.m.					5		Electrical	Huge bolt of lightning caused fire and explosion at appliance and sporting goods store. Entire west wall blown into street, about one-third of roof collapsed; stock damaged or destroyed. Storm moved northeastward.
OKLAHOMA Baker, (area) Texas and Beaver Counties	22	P.m.			0	0			Tornado	Tornado knocked down 8 powerline poles and stripped off wires 5 miles west of Baker. In Baker, warehouse destroyed and 2 boxcars damaged by flying debris. Several homes damaged and TV towers and 1 windmill blown over.
WEST VIRGINIA Morgansville, Doddridge County	22	Evening				2	1	1	Electrical	2 small boys injured while playing in open when lightning struck near them.
OHIO Dresden, Muskin- gum County	22				0	1			Tornado	Substantial garage destroyed.
COLORADO Prowers County	22				0	0			Tornado	Tornado funnel formed in southern Prowers County, north of Two Buttes. It traveled southward for 3 miles. No damage reported, although it touched ground twice.
	22									Minor storms also reported at Attica, Cullison, and Medicine Lodge, Kans.; at Brentwood, Mo.; and in Hobbs and vicinity, N. Mex.
OKLAHOMA Ringling, Jefferson County	23	1:30 a.m.	1/2	100			4		Wind	Strong winds destroyed service station and damaged roofs, outbuildings, trees, and TV antennas. Storm moved southeastward.
OKLAHOMA Healdton, area, Carter County	23	1:35 a.m.			0	0			Funnels aloft	2 funnels aloft sighted near Healdton, 1 east and 1 west; moved northeastward.
TENNESSEE Madison, Davidson County	23	2 p.m.				1	1	1	Electrical	Woman received minor burn while moving outdoor furniture.
COLORADO Elbert and Lincoln Counties	23	Afternoon					2	4	Hail and rain	Hail starting north of Calhan and moving eastward, destroyed several fields of wheat in its path. Heavy rain fell at Hugo, flooding a noted basement. Over 2-1/3 inches of rain fell in 45 minutes.
FLORIDA Palatka, Put- nam County	23	Afternoon			1				Electrical	1 person killed while fishing in St. Johns River.
FLORIDA Winter Haven, Polk County	23	Afternoon					4		Wind	Strong winds, accompanying heavy thunderstorm, caused considerable local property damage.
MICHIGAN Upper central portion	23	Afternoon				1	3	1	Electrical and rain	1 injury from lightning bolt at Foster City. Miscellaneous lightning and local flood damage.

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JULY 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
OREGON Southwestern and South- eastern Por- tions	23	Afternoon					3	4	Electrical, wind, rain	Near Medford, lightning caused numerous power service interruptions, some crops damaged by accompanying high winds and rain. Near Rome, 300 acres of range land burned over by lightning- started fires. Damage by lightning \$5,000; by wind \$25,000; by rain \$2,500.
OHIO Marion, Marion County	23	3:45 p.m.			0	0			Funnel aloft	
NORTH DAKOTA Central and north-central portions	23	Late afternoon	100				4	5	Wind, hail, and rain	Extensive damage to crops over wide area by wind, hail, and heavy rain. Storm moved eastward.
KANSAS Rooks County	23	6-7 p.m.			0	0			Hail and funnel aloft	Several thunderheads passed over area near Webster Dam between 6 and 7 p.m. Hail of marble size fell over 5-square mile area, but with only slight damage. Funnel observed to form and dis- appear 3 or 4 times, but did not touch ground. It made definite roaring sound. Storm moved southeastward.
NORTH DAKOTA McHenry County (southern por- tion)	23	8 p.m.					4	5	Hail, rain, and wind	Wind estimated up to 70 m.p.h. 100 percent crop damage; all windows in Keif broken; trees dam- aged and basements flooded.
COLORADO Weld County	23	9 p.m.			0	0	3		Tornado	Roofs of 4 farm buildings blown off on 2 farms 8 miles east of Longmont.
NEBRASKA Ravenna (east of), Buffalo County	23	Late evening	Short	Narrow	0	0	2	2	Funnel aloft and wind	Funnel remained aloft. Storm moved eastward.
	23									Minor storms also reported in Salmon National Forest, Idaho; at Waterloo, Ala.; at Duncan and Marlow, Okla.; at Winner, S. Dak.; near Cross Plains and in Fullers Chapel community, Tenn.; and at Burleson and Wichita Falls, Tex.
WEST VIRGINIA Wood, Ritchie, Gilmer, Lewis, Webster, Fay- ette, and Kanawha Counties	23-24	Evening							Rain	Locally heavy rains caused flash floods, and landslides. Damage to highways, gardens, homes, bridges, and river valley crops.
CALIFORNIA North of Ukiah- Oroville line	23-24						5		Rain, hail, wind and electrical	Widespread thunderstorms, with locally strong winds, torrential rains, and heavy hail. Light- ning struck telephone and powerlines in several localities and damaged 3 homes at Capay, Ukiah, and Mill Creek, and caused 82 forest fires in northern mountains. Gale-force winds accompa- nying thunderstorm damaged farm buildings north of Orland. Cloudbursts with hailstones ranging up to golf-ball size hit Fort Jones and Gazelle areas of Siskiyou County, destroying up to 75 percent of grain crops in some areas, and wash- ed out railroad beds and flooded some highways. Small sawmill washed away by flood waters. Dam- age in area estimated at \$50,000 for property and \$116,000 for crops. In Modoc County, hail- stones up to 1-1/2 inches in diameter fell near Patterson Ranger Station; in south end of Jess Valley extensive damage to hay crop from hail ranging up to 2 inches diameter; heavy rain and hail caused considerable damage to crops in Fort Bidwell area. Severe hailstorm occurred in vicinity of Portola, Plumas County, and at Susan- ville, Lassen County, approximately 1 inch of rain fell in 15 minutes, with hailstones measur- ing about 1/2 inch in diameter.
IDAHO Northern por- tion	23-24								Electrical	In St. Joe National Forest, 10 fires reported, all small and less than 1 acre. In Nez Perce National Forest, numerous small fires. Kendrick reported worst storm in years. Many trees blown down, roofs torn off, and sheds demolished. Many buildings and houses damaged by falling trees.
	23-24									Minor storm also reported in Merrick County, Nebr.
NEBRASKA Ainsworth to Bassett and vicinity, Brown to Rock Counties	24	1-2 a.m.	16				4	3	Wind, hail, and rain	Hailstones size of marbles. Storm moved eastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Kansas City, Jackson County	24	Early morning			0	0	4		Wind and funnels aloft	Powerlines downed, 1,100 to 1,200 homes and business places without electricity. Funnel- appearing clouds reported. Tree limbs downed. No extensive damage.
NEBRASKA Cushing (4 miles east of), Howard County	24	4 a.m.			0	0	2	2	Wind and tor- nado (sus- pected)	Large barn flattened.
NEBRASKA Bartlett, Wheeler County	24	4 a.m.					2	2	Hail, wind, and rain	Hailstones as large as eggs.
LOUISIANA Sulphur (20 miles south- west of), Cameron Parish	24	9:40 a.m.			0	0			Funnels aloft	2 funnel clouds reported over uninhabited swamp- land.
INDIANA Richmond, Wayne County	24	11 a.m.			0	0			Funnel aloft	
OKLAHOMA Carnegie (8 miles south- east of), Caddo County	24	A.m.							Electrical	Lightning caused fire which burned barn on each of 2 farmsteads. Contents lost included 4,500 bales of hay and 2,000 bushels of barley.
TENNESSEE Rockwood, Roane County	24	Noon						1	Rain	A heavy 1-hour rainstorm flooded downtown busi- ness areas up to 1 foot and surrounded some homes.
UTAH Loa, Wayne County	24	12:30- 12:50 p.m.	8 *	1-1/2				4	Hail	Hailstones 1/2 inch in diameter. Storm crossed town of Loa and fields to north and east.
MISSOURI Jefferson City, Cole County	24	1:10 p.m.			0	0			Funnel aloft	
IDAHO Southern Counties	24	Early afternoon							Electrical, rain, and wind	Lightning set small range fire and exploded tree in City of Pocatello. Heavy rain fell north and south of City. 35,000 acres of range land burned over in Payette County, 65 acres of grain destroyed, and heavier grain blown down in Emmett area. In Twin Falls County, 14 large trees blown over, many power and telephone lines blown down.
ARIZONA Grand Canyon (south rim), Coconino County	24	Afternoon	1/2	200	0	0	3	1	Tornado (suspected)	Merchantable timber blown down. Tornado moved northward.
PENNSYLVANIA Kirkwood area, Lancaster County	24	Afternoon				1	4	1	Electrical	Man injured when struck by lightning, while working in barn which burned to ground.
NEW JERSEY Camden and Burlington Counties	24	Afternoon -early evening					4		Rain	Minor flooding after heavy rains damaged a number of bridges, undermined 1 home, and flooded numerous cellars. Automobiles strand- ed on highways, with a few automobiles sub- merged at underpasses. Storm moved eastward.
NORTH CAROLINA Dare County	24	5:30 p.m.	2- 1/2	100		1	3		Tornado	Cooperative observed at Manteo, reported he saw 2 funnels, moving on eastward, skipping path and making sound like jet airplane. Wind speed clocked in vicinity at 85 m.p.h., heavy thunder and rain. Damage to roofs, trees, antennas, and 1 garage destroyed.
COLORADO Weld County (western por- tion)	24	6 p.m.					4		Hail, rain, and wind	In vicinity of Greeley, heavy rain flooded base- ments and damaged streets and roads. Near Windsor, "twister"-type wind bent power pole and put power out for a few hours. Hail dam- aged truck crops, corn, and beans southwest of Greeley and in Windsor area.
KANSAS Marion and Chase Counties	24	7-7:30 p.m.	6	*1					Hail	Hailstones ranging in size from 1 to 5 inches in diameter. Stones not frequent and some of the larger ones appeared to be clusters of stones frozen together. Storm moved southeast- ward; centered near Cedar Point.
WYOMING Cheyenne, Laramie County	24	7:30-8 p.m.					4	3	Rain, wind, and hail	Storm moved southward.
COLORADO La Junta, Otero County	24	Evening					3		Rain	2 storm clouds from opposite directions, meet- ing over La Junta, left 1-3/4 inches of rain in less than 1 hour. 3 underpasses closed by flood

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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					Killed	Injured	Property (exclusive of crops)	Crops		
COLORADO (Cont'd.)										waters. Car trapped in one of them, but driver fled before car was covered by water. 1 storm moved northwestward, the other southeastward.
KANSAS Lyon County	24	Evening			1	2			Rain	3 cars collided when drivers blinded by heavy rain north of Emporia.
	24									Minor storms also reported in Montgomery County, Ala.; at Savannah, Ga.; in Appanoose and Benton Counties, Iowa; at Pleasanton, Kans.; at Monett, Mo.; near Atkinson, Dorchester, and Fullerton, Nebr.; in Hertford County, N. C.; in Highland County, Ohio; at Elk City, Okla.; and near Beaver, Pa.
KANSAS Crawford and Cherokee Counties	24-25	11 p.m.- 4 a.m.							Wind, hail, and electrical	High winds uprooted trees, broke limbs and branches, and damaged a number of buildings. Severe hail occurred 4 or 5 miles north of Pittsburg. Lightning struck 4 separate places in Pittsburg between 11 p.m., and 2 a.m.
MISSOURI Southwestern portion	25	1-3 a.m.					5	4	Rain and wind	Heavy rains and gusty winds. Many trees and wires downed in Springfield and Joplin. Joplin had 4 inches of rain in 3 hours. Nevada had 2 inches of rain.
MISSOURI Highlandville and Nixa, Christian County	25	1:10 a.m.							Funnel aloft	
TEXAS Channing (4 miles north of), Hartley County	25	1:40 a.m.			0	0			Tornado	Truck driver reported he stopped truck to let tornado cross highway. Tornado moved north-eastward.
TEXAS Dalhart (near), Dallam County	25	2:08 a.m.			0	0			Funnel aloft	
KANSAS Montgomery County	25	3:45 a.m.							Electrical	Warehouse in Independence struck by lightning and burned with contents of grains and seed.
ARKANSAS Jacksonville, Pulaski County	25	6:10 a.m.			0	0			Funnel aloft	Reported by Little Rock Air Force Base.
MICHIGAN Kent County	25	Morning					4	1	Electrical	Barn and silo destroyed by lightning-set fire.
MISSOURI Springfield, Highlandville, and Nixa areas, Greene and Christian Counties	25	1:46 a.m.			0	0			Funnel aloft	
COLORADO Colorado Springs, El Paso County	25	2 p.m.					5		Electrical and hail	Storm concentrated over city did considerable damage. 3 fires caused by lightning, and powerlines damaged. 3-inch hail reported in sections of city and heavy rain flooded streets and basements.
FLORIDA Miami, Dade County	25	Afternoon			0	0			Waterspouts	2 waterspouts seen over Biscayne Bay.
MISSOURI Portageville, New Madrid County	25	3:10 p.m.			0	0			Funnel aloft	
FLORIDA Baldwin, Duval County	25	4:10 p.m.			0	0			Tornado	Funnel cloud touched ground in uninhabited area; moved northeastward.
MISSOURI Malden, Dunklin County	25	4:55 p.m.			0	0			Funnel aloft	
MASSACHUSETTS Greenfield, Franklin County	25	5 p.m.						1	Wind and rain	Heavy wind damage in several block sections of northeastern Greenfield. Some residents thought this a small tornado. Accompanying heavy thunder-shower, also localized, caused road washout. Phone-and powerlines downed by falling trees. 1 home damaged and many TV antennas broken. Storm moved southeastward.
COLORADO Otero County	25	6 p.m.					°3		Hail, rain, and wind	Corn, cucumber, melon, and onion crops damaged by hail and rain driven by high winds, in farming area around Manzanola, Vroman, and Fowler.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
COLORADO (Cont'd.)										Over 2 inches of rain fell in less than 1/2 hour. Hail also damaged roofs, windows, and signs.
WEST VIRGINIA Roane County	25	9 p.m.			7				Rain	Heavy rains caused flash floods; home washed away. 7 persons drowned.
KENTUCKY Hardin County	25	P.m.			1				Electrical	Fort Knox soldier killed by lightning.
WYOMING Douglas (near), Converse County	25				0	0			Funnel aloft	
	25									Minor storms also reported at Aurora, Cornish, Nunn, Wages, and Wellington, Colo.; in Elk County, Kans.; in Franklin County, Ky.; at Cardwell and Pierce, Mo.; near Ogallala, Nebr.; at Hamill, Keyapaha, and Millboro, S. Dak.; and at Hillsboro and near Oakfield, Tenn.
KANSAS Stanton, Kearny, and Lane Counties	25-26	9 p.m.- 12:30 a.m.			0	0			Funnels aloft	Funnel clouds (8) observed moving northeastward: 1 near Big Bow at 10 p.m.; 1 about 2 miles north of Lakin at 11:20 p.m.; 2 in northern Kearny County at 11:25 p.m.; 4 about 10 miles south of Dighton, Lane County, 11:50 p.m.-12:30 a.m.
	25-26									Minor storm also reported at Bridgton, Maine.
VERMONT Orleans County	26	Midday				2	5	3	Electrical, rain, wind, and hail	Extensive damage to highways, farmland, and crops by torrential downpour accompanied by wind and lightning. Huge washouts in town and state roads in scores of spots. Some long stretches of road lost. Gardens and field crops ruined. Storm described as worst in many years in parts of Troy, Jay, Newport, Orleans, Barton, and Brownington. 2 persons injured in Orleans from accidents caused by storm. Lightning damaged some transformers. Parts of Jay and Troy hit later the same day by a second heavy rain-storm, with large hailstones adding to crop damage.
MISSOURI Kennett, Dunklin County	26	1:28 p.m.			0	0			Funnel aloft	
SOUTH DAKOTA Wood, Mellette County	26	3 p.m.						4	Hail	Crop damage east and south of town; ground covered with hail.
ARIZONA Prescott, Yavapai County	26	Afternoon					4	1	Rain	Water damage to merchandise.
FLORIDA Jacksonville, Duval County	26	Afternoon			0	0			Funnel aloft	Cloud moving eastward sighted near Jacksonville Naval Air Station.
SOUTH DAKOTA Vivian (south of), to Presho (south- west of), Lyman County	26	Afternoon	10	*3				5	Hail and rain	Wheat in windrows threshed out completely. 6 to 8 inches of rain caused considerable washing. Storm moved eastward.
SOUTH DAKOTA Reliance (south of), Lyman County	26	Afternoon						4	Hail and rain	Windrowed grain threshed; corn and milo stripped.
SOUTH DAKOTA Fredrick, Brown County	26	Afternoon						4	Hail and wind	Storm moved northeastward into North Dakota.
VERMONT Franklin and Addison Counties	26	5:30 p.m.	8	440- 880			4	3	Hail, wind, rain, and electrical	Hail damaged crops in strip from Georgia Center to Fairfield. Hail 1 inch average size, largest 2 inches in diameter. Hail disc-shaped. Several hundred windows broken; also roof damage. Notable winds in Georgia Center, where bus damaged by falling limb. Many trees and limbs downed. Lightning damaged several power transformers. Light hail, without damage, also reported in Addison County. Storm moved northeastward.
MINNESOTA Marshall, Big Stone, Stevens, and Swift Counties	26	6 p.m.							Hail	Hail damage reported from 9 sections in Marshall County, from 4 sections in Big Stone County, from 18 sections in Stevens County, and from 16 sections in Swift County. Storm moved south-eastward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Lake Nordin, Hamlin County	26	6:30 p.m.	6	*3				4	Hail and wind	2-1/2 inches of rain reported. Storm moved north-eastward.
MINNESOTA Euclid, Polk County	26	7 p.m.			0	0			Funnel aloft	Moved eastward.
KANSAS Lane County	26	7-8 p.m.			0	0			Funnel aloft	Sighted moving eastward for only a few minutes aloft near Healy.
KANSAS Edwards County	26	8-8:05 p.m.	1	100	0	0	2		Tornado	Small tornado moving eastward touched ground 7 miles north and 2 miles west of Kinsley. Funnel observed as it took roof off building and carried it 1/8 mile away.
KANSAS Barton County	26	8:53- 9:25 p.m.			0	0			Funnels aloft	First funnel observed 2 miles west and 1 north of Great Bend at 8:53 p.m. It dipped and rose several times, but did not come to ground. Second funnel occurred 3 miles east of Great Bend at 9:25 p.m.
SOUTH DAKOTA Dixon, Gregory County	26	Evening						4	Hail and wind	Corn stripped.
	26									Minor storms also reported in Sedgwick and Wichita Counties, Kans.; near El Reno and Watonga, and at Fairfax and Guthrie, Okla.; in Winner area, S. Dak.; and at La Follette and Nashville, Tenn.
NEW YORK Long Island area	26-27	Afternoon 26th through 27th				5			Rain, electrical, and wind	Considerable damage in scattered areas caused by severe thunderstorms, lightning, and heavy rains. Severe flooding with heavy damages to basements and automobiles in city of Albany. Considerable lightning damage in Poughkeepsie area, especially to powerlines and lighting systems; 2 barns and 1 house struck in area, and several other fires due to lightning in nearby areas. Considerable damage in Long Island area where flooding occurred; lightning struck many homes and several barns, and 5 persons injured.
CONNECTICUT and RHODE ISLAND	26-27	8 p.m. 26th- 6 a.m. 27th			2		°5		Electrical, hail, and rain	Series of thunderstorms starting in northwestern Connecticut on late evening of 26th and passing eastward through eastern Connecticut and Rhode Island during early morning of 27th resulted in widespread lightning damage to buildings and death to livestock. Buildings destroyed by lightning-caused fires at Storrs, Conn.; North Kingstown, R. I., in which 2 persons killed in fire; at Lakeville and Pachaug, Conn.; at Bolton and near Hartford, Conn. Total damage about \$60,000. Many more homes, etc., struck throughout both States, with minor damage. 24 head of livestock killed at Lakeville, Sharon, Rocky Hill, Easthampton, and Stonington, Conn. Total loss estimated at \$8,500. Factory at Rocky Hill, Conn., flooded by rain waters to extent of \$3,000 damage. Hail damage to home gardens reported in northwest Connecticut and squall capsized boat off Pt. Judith, R. I., endangering lives of 2 fishermen. Excessive amounts of precipitation accompanied thunderstorms; observer at Falls Village estimated 3.55 inches between 11 p.m., and midnight on 26th, while observer measured 1.85 inches between 3:02 and 3:28 a.m., on 27th at North Stonington, the 2 towns in opposite corners of Connecticut.
MISSOURI Rockport, Atchison County	27	2:07 a.m.			0	0	3		Tornado	Demolished several outbuildings.
MASSACHUSETTS South-central and south- eastern por- tions, includ- ing Cape Cod	27	Early a.m.			1		4	1	Electrical, rain, and wind	Heavy rain washed out sections of roads and flooded some cellars. Much lightning damage to utility lines and some damage to homes. 1 person killed when swept off boat by wind near Orleans.
MARYLAND and DELAWARE	27	9-9:25 a.m.	1-1/2		0	0	5	3	Wind, rain, and funnel aloft	Freak windstorm hit area between Showell and Bishopville and destroyed or damaged 17 farm buildings and killed about 20,000 chickens; losses estimated \$70 thousand. Storm variously described as sudden and twister-like but no funnel cloud observed in Showell-Bishopville area. It struck first about 3/4 mile north of Showell where it hit 4 farm buildings. Then it traveled northeastward for 1/4 mile and damaged or destroyed 7 more buildings. 1-1/4 miles further and in northeasterly direction it hit 6 farm buildings and killed about 20,000 chickens.

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					Killed	Injured	Property (exclusive of crops)	Crops		
MARYLAND and DELAWARE (Cont'd.)										Heavy rain estimated at 1.50 inches fell in brief period of about 5 to 10 minutes accompanied by hailstones approximately 1/4 inch in diameter. Field crop damage estimated \$4 thousand. Between Selbyville and Williamsville, Del., unidentified observer reported funnel cloud (this is about 3 miles northeast of last reported damage of freak windstorm between Showell and Bishopville).
PENNSYLVANIA Allentown and vicinity, Lehigh County	27	2:15 p.m.				1	4	1	Wind, electrical, and rain	Largest damage occurred at carnival where tents and ferris wheel blown down. Bolt of lightning struck church, but no fire resulted and damage light. Elsewhere, power failures, flooded basements, and downed trees common. Storm moved eastward.
COLORADO Weld and Morgan Counties	27	Afternoon	35					4	Hail	Hail starting west of Roggen, moved eastward to Brush area, did heavy damage to 1,163 acres of beets, moderate damage to 1,653 acres and light damage to over 1,000 acres. Other crops damaged also.
ILLINOIS Quincy, Adams County	27	3 p.m.			1	3			Rain	4 small children playing on streets washed into storm sewer, 1 drowned.
TEXAS Snyder (20 miles north- west of), Scurry County	27	3:20 p.m.			0	0			Funnel aloft	
ILLINOIS Central portion	27	Late afternoon				Sev- eral			Rain, wind, and electri- cal	Numerous heavy thunderstorms caused scattered damage from Moline - Ottawa area southward to Decatur and Carlinville. Several minor injuries when winds blew down 2 dozen exhibition tents at county fair in Decatur about 5 p.m.
ILLINOIS McLean County	27	4:10 p.m.	5			1	3		Wind	Storm moved from Covell to Shirley with 1 minor injury at Covell. Feeding barn and large steel grain bin destroyed. Storm moved southeastward.
OKLAHOMA Beaver, Beaver County	27	4:29 p.m.			0	0			Tornado	Pilot reported funnel which he believed touched ground. No other information or damage reported.
TEXAS Bailey and Parmer Counties	27	4-4:20 p.m.	12	*6				5	Hail	In northwestern Bailey County and southwestern Parmer County; extensive damage to cotton and grain sorghums. Storm moved northeastward.
TEXAS Borger, Hutch- inson County	27	4:30- 4:40 p.m.	Short	Narrow	0	0	1	1	Tornado	Touched ground briefly southwest of city limits; moved northeastward.
TEXAS Hutchinson and Carson Counties	27	4:30- 4:40 p.m.			0	0			Funnel aloft	Seen at Borger and Skellytown.
TEXAS Skellytown (near), Car- son County	27	4:53 p.m.			0	0			Funnels aloft	Several funnels sighted.
FLORIDA West Palm Beach, Palm Beach County	27	5:45 p.m.			0	0			Funnel aloft	
TEXAS Texhoma, Sher- man County	27	6:28 p.m.			0	0			Funnel aloft	
MISSOURI Seymour, Webster County	27	6:30 p.m.					3		Wind	Trees and wires downed. Winds estimated at 60 m.p.h.
OKLAHOMA Hollister, Tillman County	27	6:45- 6:50 p.m.	Short	Narrow	0	0	4		Tornado	Tornado moving eastward destroyed portion of school building.
MISSOURI Waynesville, Pulaski County	27	7:40 p.m.							Wind	Wind hit estimated 60 m.p.h., briefly.
MONTANA Canadian border to Fairfield Bench, in Glacier, Pondera and Teton Counties	27	8 p.m.	100	*8-10			4	6	Hail	Hailstones up to 3 inches in diameter. Damaging hail covered exceptionally large area. Property damage mostly in and near town of Pendroy. Poultry killed at Conrad. Hail came in bursts between 8 and 11 p.m. Unusually severe hailstorm in many parts of overall area. Storm moved southeastward.

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					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Savannah and Helena, Andrew County	27	8:30 p.m.			0	0			Funnel aloft	
MISSOURI Helena (12 miles east of), Andrew County	27	8:38 p.m.							Funnel aloft	
OKLAHOMA Frederick, Tillman County	27	P.m.							Electrical, wind, and rain	Lightning destroyed transformer bank serving an ice and frozen locker plant and another strike broke powerline. Strong winds caused consider- able damage to utility lines in area.
	27									Minor storms also reported at Maysville, St. Charles, and Worth, Mo.; and Hydro, Okla.
ARIZONA Parker (40 miles south of), Yuma County	28	Afternoon				1	3	1	Rain	Water damaged buildings and injured worker.
MICHIGAN Lower south- eastern por- tion	28	Afternoon					3	4	Wind and hail	Scattered wind damage through southeastern por- tion of State. Crop damage from hail and high winds in southeastern Saginaw County.
NEW YORK Adams-Water- town areas, Jefferson County	28	Afternoon						2	Rain, electri- cal, and wind	Severe thunderstorms with near cloudburst rain- fall. High winds in area of Pamela Center up- rooted 30 trees, and damaged 6 buildings; powerlines out and lightning strikes to homes.
OREGON Northeastern and east-cen- tral portions	28	Afternoon					4	4	Electrical	Scores of fires started in State and National Forests, most of which were less than 1/4 acre. 10,000 to 15,000 acres of range land burned over by lightning-set fires.
SOUTH CAROLINA Ft. Jackson, Richland County	28	Afternoon				6			Electrical	Injuries from lightning.
TENNESSEE Sante Fe, Maury County	28	P.m.				1	1	1	Electrical	18-year old girl, struck by lightning in her home, treated for shock.
WEST VIRGINIA Hancock, Ohio, and Tyler Counties	28	Evening				1			Electrical, rain, and wind	Trees uprooted; basements flooded, and some river-bottom crops damaged by high water. Office building in Wheeling struck by light- ning.
PENNSYLVANIA Washington, Allegheny, Westmoreland, Indiana, and Cambria Counties	28	Evening- night					4		Wind and electrical	Winds that reached 80 m.p.h., blew down several structures including barn, several walls, numerous powerlines, and trees. Wind also flattened some crops in fields. Several houses struck by lightning, but only 2 fires resulted, causing minor damage.
WEST VIRGINIA Kanawha and Upshur Counties	28	Evening- night				1			Electrical, rain, and wind	High winds blew down trees carrying powerlines with them and disrupted power services and dam- aged buildings.
PENNSYLVANIA Allentown and Wilkes Barre areas, Lehigh and Luzerne Counties	28	Night					4		Wind and electrical	Strong winds lifted roofs from supermarket, home, and 2 barns. Many trees uprooted. Light- ning fired house and barn. Several acres of corn flattened by wind. Storm moved southeast- ward.
	28									Minor storms also reported in Boyle, Grayson, Muhlenberg, and Scott Counties, Ky.; at Shelby, N. C.; in Antioch community, at Knoxville, Memphis, and Oak Ridge Tenn.; and at Pine River, Wis.
CONNECTICUT and RHODE ISLAND	28-29	Late p.m. 28th- early a.m. 29th				1	2	1	Electrical and fog	Woman injured by falling plaster as lightning struck home in Providence, R. I. Power failures in central Rhode Island and southern Fairfield County, Conn. Small fire in home struck by lightning in Bridgeport, Conn. Heavy fog in Narragansett Bay preceding thunderstorm caused picket boat to run aground.
CALIFORNIA Northern, cen- tral, and interior of southern por- tions	28-29				6	2	5		Wind, rain, hail, and electrical	Widespread thunderstorms of unusual intensity caused by upper level "Low" off southern Cali- fornia. Severe lightning caused 6 deaths and 2 serious injuries: 3 boys, who had taken refu- ge under large tree near Vacaville killed when tree struck by lightning; another boy killed by lightning while wading in Bass Lake, near Placer- ville; man killed by lightning while operating

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					Killed	Injured	Property (exclusive of crops)	Crops		
CALIFORNIA (Cont'd.)										bull-dozer near Cool, Eldorado County; near Woodland, ranch worker killed while irrigating tomato field when struck by lightning; 2 orchard workers seriously injured by lightning in peach orchard in northern Merced County. Lightning struck trees, houses, powerlines, and started numerous grass, brush, and forest fires throughout central and interior of southern California. Cloudbursts flooded many highways and low-lying areas in southeastern desert, with many stores and homes inundated in central section of Twentynine Palms. Cotton fields in northern sections of Imperial Valley hard hit by wind, heavy rain, and flooding. Heavy rains in mountains of southern California caused several mud slides, 1 covering highway for 1/2 mile in Barton Flats area. High winds accompanying thunderstorms blew down trees and caused some damage to buildings in Fresno area; demolished lumber shed at Pinedale; carried away 100 feet of chicken house near Kingsburg; lifted corrugated metal roof from school bus shed and scattered lumber piles at lumberyard in Auberry. Wind-blown waves damaged or sank many boats on Millerton and Shaver Lakes. At Campo, San Diego County, heavy wind and rain squall, with speed estimated at 65 m.p.h., demolished 250-foot chickenhouse, valued at \$5,000, killing 1,200 chickens, valued at \$1,800, tore off limbs of large oak trees, and damaged roofs of other buildings in vicinity. Campo weather observer reported 1.18 inches of rain in about 1/2 hour. Heavy hail caused damage in scattered localities. Hailstones up to 1 inch in diameter fell at Angwin and Calistoga in Napa Valley, and pilot flying in vicinity of Barstow encountered hailstones as large as golf balls.
IDAHO Northern portion	28-29								Wind, rain, and electrical	Lightning touched off 11 small fires in Clearwater National Forest. Nez Perce National Forest reported 9 lightning fires. Heavy rains caused flash flood in Tammany area. Electric and telephone services interrupted, but quickly repaired.
MASSACHUSETTS Bristol County	29	Early a.m.				1	4	1	Electrical, rain, and wind	Washing and flooding rains washed out sections of roads and flooded factory with much damage. Some lightning damage to buildings and utilities. Wind blamed for boiler explosion which injured 1 man.
MAINE Coastal section	29	Early a.m.					4	1	Rain	Washing and flooding rains. Serious road washouts at Waldoboro. One gully 25 feet wide and 50 feet deep where trees and a road section washed out. Water caused collapse of new supermarket basement wall at Machias.
IOWA Dubuque County	29	4 a.m.			0	0	4	1	Tornado (suspected)	Destroyed farm buildings.
NEBRASKA Ogallala (west of), Keith County	29	12:35 p.m.				3	3	1	Wind	Car and trailer house blown from highway and wrecked.
INDIANA Hamlet, Starke County	29	3 p.m.			0	0	4	4	Tornado, wind, hail, and rain	2 barns blown down just south of Hamlet. Hail, rain, and wind struck 3-mile area. Damages: hail \$4,000; wind \$1,000; tornado \$20,000; rain \$1,000.
MASSACHUSETTS Worcester- Shrewsbury area, Worcester County	29	3-3:10 p.m.	2	Narrow	0	0	3	1	Tornado (suspected), rain, and hail	Trees uprooted and broken at both ends of path across Lake Quinsigamond, with 1 lake front cottage badly damaged in Shrewsbury. Unverified report that storm crossed lake as waterspout. Most debris fell eastward, in 1 direction. Tree seen to rotate as it flew through air over housetop. Extremely loud buzzing sound heard as storm passed overhead. Rain came into homes through windows in all directions, practically at 1 time, according to witnesses. Though hail not reported in storm's path, marble-size hail fell nearby. Some gardens ruined by wind. Many residents believed storm to be small twister. Storm moved eastward.
ARIZONA Tucson, Pima County	29	Afternoon					5	1	Rain	Property damage due to flooding.
WYOMING Cheyenne (25 miles east of), Laramie County	29	Afternoon			0	0	1	1	Tornado	

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NORTH CAROLINA Lexington (northwest of), Davidson County	29	4 p.m.			0	0			Tornado	Tornado just touching ground occasionally twisted large trees off several feet above ground. 1 or 2 thrown toward southeast; short distance away others thrown toward northwest. Small outbuilding demolished with apparent explosive force and strewn over area.
IDAHO Payette, Payette County	29	5 p.m.					4	5	Hail, wind, and rain	Gusty winds estimated up to 70 m.p.h., demolished warehouse used to shelter 6 new cars. Winds and rain hit fruit company warehouse, partially destroying it. Fruit losses and sweet corn damage considerable.
NEVADA Las Vegas, Clark County	29	6 p.m.							Rain	Heavy thunderstorm rain along the Mt. Charleston Range produced heavy runoff, causing damage to several streets and roads in and near Las Vegas.
INDIANA Goshen area, Elkhart County	29	8:17 p.m.			0	0			Funnel aloft	Observed moving eastward 6 miles southeast of Goshen.
NEBRASKA Wayne (near), Wayne County	29	8:50 p.m.			0	0			Funnel aloft	
NEBRASKA Pilger (4 miles north of), Stanton County	29	10:30- 10:45 p.m.	4	*2			2	4	Rain and hail	Hailstones 1 inch in diameter, but sparse. Storm moved southeastward.
WYOMING Northern Camp- bell County and southern Crook County	29	Evening	60	20			4	5	Hail	70-m.p.h., winds made this an especially devastating storm which moved eastward.
GEORGIA Ben Hill, Irwin, and Cook Counties	29	P.m.			3		3	1	Electrical, wind, and rain	Near Fitzgerald, lightning struck in midst of family working at tobacco shed, injuring 3 members. Lightning and minor wind damage in neighboring Irwin County and in Cook County same afternoon.
WASHINGTON East slope of Cascades and east	29						4	4	Electrical, rain, and hail	Numerous forest and grass fires started by lightning. Heavy rain near Wilbur caused serious erosion and damaged crops. Rain and hail caused damage in some localities of Okanogan Valley. Hail covered ground to depth of 1 inch or more near Conconully. Hail damage in upper Yakima Valley.
	29									Minor storms also reported at Woodland, Ind.; and near Norfolk, in Pierce area, and at Polk, Nebr.
IOWA Eastern por- tion	29-30	Afternoon -early morning					5		Electrical and wind	Lightning burned rest home and lumberyard. Wind damaged homes, utilities, and cars.
	29-30									Minor storm also reported near Norfolk, Nebr.
MISSOURI Maryville, Nodaway County	30	1:30- 3:15 a.m.			0	0			Funnels aloft	3 funnels observed, 1 at 1:30 a.m., just south, 1 at 2:55 a.m., 10 to 15 miles south, and 1 at 3:15 a.m., south. Moved east-southeastward.
MISSOURI Between Albany and Bethany, Gentry and Harrison Counties	30	3:55 a.m.							Funnel aloft	
KANSAS Sedgwick County	30	Daytime				2			Wind	Wind toppled ramp of moving van over on 2 men as they were starting to unload van.
MISSOURI St. Clair, Franklin County	30	1 p.m.					4	3	Wind	300 to 400 telephones out. Power lines and trees down. Wind estimated 70 m.p.h.
GEORGIA Thomas and Grady Counties	30	2-3 p.m.					3	1	Wind and rain	Heavy rains (3 inches in 1 hour) caused street flooding and strong winds damaged trees and utility lines in Thomasville. Heaviest wind damage 3 miles northeast of Thomasville where several large trees blown down and 1 house heavily damaged. Winds estimated 60 to 75 m.p.h., in this area. Heavy rains and winds caused minor damage at Cairo in adjoining Grady County same afternoon.
UTAH Collinston (near), Box - elder County	30	2-3 p.m.	4	*2					Rain and hail	Estimated 2 inches or more of rain at center of storm. Resulting heavy run-off washed out bridge valued at \$6,000; State road washed out in 2 places and numerous gullies cut in recently plowed fields. Hailstones up to 1 inch in

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
UTAH (Cont'd.)										diameter covered ground to depth of 2 inches. Severe damage to corn, potatoes, wheat, and beets from hail, rain, and flooding. Storm moved northeastward.
NEBRASKA Anselmo and vicinity, Custer County	30	6 p.m.			0	0	3	3	Tornado (sus- pected) and hail	Property damage by suspected tornado; crop dam- age by hail.
KANSAS Atchison County	30	7-10 p.m.							Rain	Second flash flood in Atchison this month, re- sulted from fall of about 3 inches of rain in 2 hours. Much of same area affected as on July 11 with comparable damage. A number of business houses had just reopened with new fixtures, stock, and machinery.
KANSAS Brown County	30	7:20 p.m.							Electrical	Machine shed, farm implements, and large quan- tity of hay and feed destroyed when lightning struck 1-1/2 miles west of Hiawatha.
KANSAS Dickinson County	30	9:30 p.m.							Wind	Very severe wind with some tornadic character- istics struck Sand Springs community west of Abilene. Storm sudden and of short duration, lasting less than 10 seconds as estimated by 1 man. Trees uprooted, T.V. antennas bent and broken, much fruit and many melon patches damaged. Car moved 100 feet by wind. Sound more of a screech than usual tornado roar, as described by 1 observer. Approaching rain looked like a wall of water, and over 1 inch reported to have fallen in less than a minute. Storm moved southeastward.
KANSAS Riley County	30	10-10:15 p.m.	4	*1					Wind	Damage path about 4 miles long beginning at Agronomy Farm northwest of college and continu- ing across northern part of Manhattan. Wind gusts estimated at 60 m.p.h. Trees uprooted, branches broken, T.V. antennas bents, some small buildings overturned, and several others unroofed. Storm moved southeastward.
MISSOURI Columbia, Boone County	30	10:45- 11:30 p.m.					3	3	Wind	Squall line moved across Columbia. Peak wind hit 79 m.p.h., at 10:55 p.m. Limbs and wires downed. Storm moved southeastward.
MISSOURI Columbia, Boone County	30	Night					2		Wind and rain	Winds up to 80 m.p.h., and 1/2 inch of rain in 10 minutes.
WYOMING Yoder (south- west of), Goshen County	30				0	0	1	1	Tornado	
	30									Minor storms also reported near Hiawatha, Kans.; at Glasgow, Gorin, Hardin, Kirksville, St. Joseph, and in Carroll County, Mo.; near Tekamah, Nebr.; and at Spring Hill, Tenn.
MISSOURI Macon, Macon County	30-31	Evening- early morning							Rain	5 inches of rain at Macon.
MISSOURI Kansas City, Jackson County	30-31	Night					6	5	Rain	Most small streams overflowed, particularly along Blue River. Many roads and bridges wash- ed out. Many homes and businesses with flood- ed basements.
MISSOURI Rolla (10 miles east of), Phelps County	31	2:43 a.m.							Funnel aloft	
MISSOURI Livingston County	31	Early morning			0	0	3		Tornado	Power- and phone lines in county downed. Out- buildings, house, and trees damaged.
NEBRASKA Alliance area, Box Butte County	31	Afternoon	5	*1-2			3	5	Hail	
INDIANA Shelbyville, Shelby County	31	3:32 p.m.			0	0	4	1	Tornado	1 house destroyed.
NEW JERSEY Essex County	31	4-6 p.m.					4		Wind, rain, and electri- cal	Several trees blown down, damaging electrical powerlines. 1 home badly damaged by lightning (\$20,000). Automobiles flooded at some under- passes. Storm moved southward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
COLORADO Trinidad, Las Animas County	31	9 p.m.					5		Rain	Heavy damage to property caused by heavy rain-storm, centered over city. Total of 2.10 inches fell in a little over 1 hour. Building undermined by flood waters, then collapsed. Damage to streets and bridges estimated between \$10,000 and \$20,000.
TENNESSEE Knoxville, Knox County	31					6		1	Wind	6 persons sustained minor injuries when hit by wind-blown, 8-foot tall barricade.
	31									Minor storms also reported at Douglas, Ariz.; at Aurora, Chillicothe, Poplar Bluff, and Tarkio, Mo.; near Carnegie, Okla.; and at Walhalla, S. C.
DELAYED REPORTS										
NORTH CAROLINA Cumberland, Franklin, Johnston, Lenoir, Mont- gomery, Scot- land, and Wilson Counties	June 6	2-10 p.m.						6	Hail	
NORTH CAROLINA Nash County	9	2 p.m.						4	Hail	
UTAH Brigham City, Boxelder County	12	10:30-11 a.m.	4-1/2 *	1-1/2			3	4	Hail	Hailstones up to 3/4 inch in diameter covered ground to depth of 3 inches over 10-square mile area. Storm moved eastward.
NORTH CAROLINA Duplin County	13	5 p.m.						3	Hail	
NORTH CAROLINA Robeson and Sampson Counties	14	3-8 p.m.					4	5	Hail and wind	
NORTH CAROLINA Hoke and Union Counties	21	7 p.m.					4	4	Hail	
COLORADO Prowers County	23	Night					3	3	Hail and rain	3-inch rain accompanied by hail caused considerable damage in area south and west of Granada. Hail losses estimated 30 to 50 percent.
UTAH Elberta, Utah County	24	1-3 p.m.							Rain and hail	Heavy rain washed out roads and irrigation systems and caused some damage to crops. Hailstones 1/2 inch in diameter caused only slight damage. Storm moved northeastward.
UTAH Nephi, Juab County	24	6:15 p.m.	1/4	100			3		Wind	2 steel grain bins (empty) lifted off ground about 10 to 15 feet, and carried 300 to 450 feet, demolishing them. Eyewitness reported no funnel visible. Storm moved southwestward.
COLORADO Adams County	27	Early evening					3		Wind	Winds of tornado force went through farm area 3 miles west of Brighton. Roof of cow shed and milk house blown away, garage destroyed, buildings moved from foundations, power poles snapped, and other minor damage to trees, fences, etc.
NORTH CAROLINA Robeson County	28						4	4	Hail	
MONTANA Richey (north and east of), Dawson County	29	9:30 p.m.	10 *	2-1/2			1	4	Hail	Hailstones about 1 inch in diameter. Storm moved southeastward.
MONTANA Ekalaka (east of), Carter County	30	3 p.m.	26	*5			1		Hail	Heavy crop damage. Storm moved east-northeastward.

* Miles instead of yards.

** Yards instead of miles.

° Includes crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JULY 1958

Major flooding occurred in several streams in Illinois, Missouri, Kansas, Iowa, and Nebraska during July. Record stages were exceeded on the lower Raccoon in Iowa, the Salt River at New London, Mo., and the Arkansas River at Great Bend, Ark. A severe flash flood on the East Nishnabotna in Iowa resulted in the loss of 19 lives and millions of dollars damage. Another flash flood in West Virginia took the lives of a mother and her six children as her home was swept away by the flood waters. The flooding on the Shenango River in Pennsylvania was the worst since 1913. The lower Missouri reached its highest level since 1951 in the reach below St. Joseph, Mo.

A record crest of 25.3 feet occurred on the Knik River near Palmer, Alaska, on the 18th. The high water was due to the release of water from Lake George which broke through its ice barrier at 5 a.m., on the 16th. This lake, which is contained behind a glacier throughout the year, is located about 20 miles above Palmer, Alaska. Several families were forced to evacuate from their homes. About 1,000 feet of track was washed out from the Alaskan Railroad. Two places on the Palmer Highway were washed out by the flood. The Knik River overflows each year when Lake George breaks through its ice barrier and empties its water into the river.

Severe flooding occurred in the Rio Grand de Loiza, Humacao, Fajardo, Patillas, Guamani, Salinas, Guayanilla, and Loco River drainage basins in Puerto Rico on the 21st, due to torrential rains which fell over the eastern portions of the island. At Humacao and Arroyo, the rivers rose higher than during any previous flood. The rainfall causing this flood ranged from 1.87 inches at Ponce to 9.25 inches at Guayama. Heavy damage and four deaths resulted from these floods, with approximately 75 houses destroyed and 1,000 persons homeless.

ATLANTIC SLOPE DRAINAGE

Minor flooding occurred on Rock Creek at Sherrill Drive, Washington, D. C., on the 9th and 22d. Both periods of flooding were due to thundershowers lasting from 2 to 3 hours. The average precipitation over the basin was 2.8 inches during the first storm and 1.25 inches during the second storm. No damages were reported.

Bankfull stage was reached on the Saluda River at Pelzer, S. C., on the 10th due to frequent showers. No damage was reported.

The minor flooding on the Savannah River at Clio, Ga., from the 23d to the 25th was due to frequent showers between the 4th and 25th. There was no material damage from the flooding.

EAST GULF OF MEXICO DRAINAGE

The flooding on the Pearl River at Jackson, Miss., Bogalusa, La., and Pearl River, La., was due to locally heavy thundershowers which began on the 7th and continued for 1 week. Flooding was confined to low pasture land and forested areas, with only slight damages reported. The principal losses were the adverse effects on commercial and pleasure fishing in streams and coastal waters adjacent to the mouths of the streams.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--A flash flood occurred on Plum Creek in Carroll County, Illinois, from heavy rain in the early morning hours of the 14th.

Flooding was confined to pastureland. A few head of cattle were reported drowned.

Major flooding occurred on the lower Raccoon in Iowa, due to heavy rain on the 1st and 2d. The rainfall averaged 4 inches in the lower Raccoon and the lower Des Moines Drainage basins with locally heavy amounts exceeding 6 inches in the south Raccoon Basin. The heavy rainfall produced flash crests higher than the record crests of 1947 at Redfield and Van Meter, Iowa. Crests in the lower Des Moines were from 3 to 4 feet above flood stage. Additional rainfall on the 4th of July caused secondary crests in the lower Raccoon and retarded the recession along the lower Des Moines. The Raccoon was above flood stage from the 2d to the 5th of the month, and the lower Des Moines was above flood stage generally from the 2d to the 8th. Another period of minor flooding occurred in the same area of the Raccoon and the Des Moines Rivers from the 19th to the 21st. Crests during this period were only slightly above bankfull. Despite the record crests at Van Meter and Redfield, damage was not heavy. Most damage was to agricultural interests and construction projects adjacent to the Raccoon in the reach from Van Meter, Iowa, to Des Moines, Iowa. Minor damage was sustained by recreational interests on the Raccoon in the Des Moines, Iowa, area.

There were three separate periods of flooding on the Salt River at New London, Mo., during the month. The last two rises crested 8 to nearly 11 feet above flood stage, respectively. The last crest of 29.75 feet on August 2 was the highest stage at that point since records were started in 1922. This was the second time in 40 years that water had gone over the bridge, flooding roads in all directions.

Flash floods occurred in small streams in north-central Illinois from the heavy rain on the 2d. The Illinois River rose 1 to 3 feet, but remained below flood stage except in the lower reach where it was already above flood stage at Beardstown, Ill. Five to 9 inches of rain over northern and central Illinois on the 13th and 14th caused a rapid rise, with general flooding on the Illinois and flash floods on many small streams including the Vermillion, a tributary of the Illinois. About 10,000 acres of cropland were flooded in the area. Major flooding occurred on the Kaskaskia, Sangamon, and Illinois Rivers, and in many places almost completely wiped out crops which had been partially destroyed by the June floods. Showers which were occasionally heavy continued from the 13th to the 20th.

There was some flooding along the main stem of the Mississippi River below the mouth of the Illinois River from the 21st to the 25th. The Mississippi River at Alton, Ill., crested 3.5 feet above flood stage on the 24th. The only other flooding in the Mississippi was in the reach from Chester, Ill., to the mouth of the Ohio River.

Missouri Basin.--Locally heavy thundershowers on the 1st and 2d produced bankfull stages with some overflow on the Boyer River near Logan, Iowa, during the morning of the 2d. Flood damage was confined to lower reaches of the Boyer River where farmland and portions of secondary farm roads were inundated. Locally heavy rains from the 9th to the 11th caused flooding in streams in the Salt Creek Basin in southeastern Nebraska. Many persons were evacuated in the northern part of Lincoln, Nebr., due to the overflow from Lynn Creek. Locally

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

JULY 1958

heavy thundershowers (3 to 5 inches) during the night of the 29th and 30th caused flooding along the Big and Little Papillion streams south of Omaha, Nebr., and along Indian Creek in Council Bluffs, Iowa.

The heavy rains during the night of the 29th and 30th caused flooding along the North Fork River in the lowland areas extending 8 miles on either side of Pierce, Nebr., on the 30th and 31st. There was also some local flooding on the Elkhorn at Pilger and West Point, Nebr. Damage along the North Fork River was limited mostly to small grain still standing in the fields. There was some crop losses along the Elkhorn at Pilger, Nebr. One bridge and approaches to five bridges were washed out. Only a few basements were flooded. There was some overflow along Cuming Creek and Pebble Creek from near Snyder, Nebr., to 3 miles southeast of Scribner, Nebr.

Extremely heavy thunderstorm activity frequented the middle and lower Missouri Basin with heavy rains causing major flooding on the Nishnabotna, Nemaha, Black Vermillion, Delaware, Strange Creek, Grand, Marmaton, and the Blue River near Kansas City, Mo. Nineteen lives were lost in the flash flood on the East Nishnabotna in the Audubon-Exira-Hamlin, Iowa, area from the heavy rain during the night of the 1st-2d. Millions of dollars in damages occurred in the basin above Hamburg, Iowa. At Red Oak, Iowa, the Nishnabotna crested 0.86 foot below the 1947 maximum flood of record. At Valley Falls, Kans., the Delaware crested at a stage of 29.15 feet, about 3 feet below the record flood of 1951. At Ft. Scott, Kans., on the Marmaton, the crest of 37.7 feet was the highest since 1928 when a stage of 39.3 feet was recorded. At Frankfort, Kans., the Black Vermillion inundated the city to a depth of 4 feet.

Heavy flash flooding occurred on Chapman Creek, tributary of the Smoky Hill on the 3d from rainfall estimated up to 9 inches in the headwaters. Considerable flooding occurred in the headwaters of Soldier Creek in northwestern Nebraska. Heavy flooding occurred on the Little Osage River in Bourbon and Linn Counties, Kans., on the 16th and on the lower Marais des Cygnes at La Cygne and Trading Post, Kans., for 14 to 15 days. Flooding which occurred intermittently along the Big Blue River in Kansas was mostly light to moderate.

Heavy thundershowers on the 8th in southwestern Missouri caused flash flooding on the Sac and other tributaries of the Osage River in Missouri. Extensive crop damage resulted. The Pomme de Terre and Niangua flooded briefly by the excessive rain.

The lower Missouri was in flood between the 11th and 29th, and reached its highest level since 1951 in the reach below St. Joseph, Mo. Several thousand acres of valuable cropland was flooded by the Missouri. Road damage also was extremely heavy.

Ohio Basin.--Heavy rain showers on the evening of the 10th with amounts up to 3.93 inches reported from Dam 8, Newell, W. Va., on the Upper Ohio River caused locally heavy damages. At Chester, W. Va., the city's storm sewer system was almost entirely wiped out. Buildings and homes along Midway Creek had to be abandoned when the water undermined their foundations. Landslides were numerous along the Pennsylvania Railroad tracks in that vicinity. Flash floods occurred on the Upper Shenango from light to heavy rainshowers during the evening of the 14th. Greenville, Pa., was seriously flooded on the 15th, with severe industrial and railroad

damage. The crest of 13.5 feet at this point on the 16th was the highest stage since October 1954 when a stage of 12.7 feet was recorded. Many small tributary streams in the Beaver Basin and adjoining basins overflowed their banks due to the heavy, scattered rainfall. The heavy flooding on the Shenango at Sharon, Pa., was the worst since 1913. The main business section was inundated with water 1 to 2 feet deep causing tremendous property damage. Many roads and bridges in the area were washed out and destroyed. Damages from this flood will be close to \$4 million. Moderate to heavy thundershowers on the 22d and 23d over the West Fork and Cheat Basins in West Virginia resulted in bankfull stages at Weston and Clarksburg. Fifty homes in the Weston area were flooded, but no serious damage resulted.

A mother and her six children perished in a freak flood that swept away their home on Grannys Creek during the early evening of the 24th, about 30 miles southeast of Spencer, W. Va. Only the father survived. He was swept through the top of the unroofed house by the surging flash flood. A witness living 300 feet downstream saw the house collapse, and stated she had never seen the creek so high. Minor flooding occurred near the confluence of the Elk River and the Kanawha River from Charleston, W. Va., to London, W. Va.

The flooding on the Little Kanawha at Glenville, W. Va., and the Hocking River at Athens, Ohio, was due to frequent rains beginning on the 5th and continuing almost every day to near the end of the month. At Parkersburg, W. Va., it was the wettest July of record with a total of 12.05 inches. Flood damage was negligible, with the loss on the Hocking limited to cleanup activities.

Moderate to major rises occurred on the lower Scioto at least three times during the month. The highest stages occurred on the 23d and 24th, when farmland adjacent to the river was inundated for the third time during this growing season. The total rainfall during July at Columbus, Ohio, was 9.46 inches. This was just 0.01 inch below the record July rainfall.

The flooding along the Little Miami River in Ohio on the 22d and 23d was due to excessive precipitation (2.5 to over 4 inches) which fell on the 22d. Most of the damage from the storm was a result of the heavy downpour rather than flooding from the rivers. Several summer camps were evacuated.

Moderate flooding occurred over the lower two-thirds of the Wabash, the lower White, and the East Fork Rivers in Indiana from the frequent heavy rains which occurred during the month. Although rainfall occurred on about half of the days of the month, the most significant flood producing amounts occurred on the 11th, 12th, 15th, and 16th. Rainfall amounts averaged about 2 inches over most of the area during each of these 2-day periods, with the heaviest concentrations over the Wabash from about Covington downstream to Hutsonville, Ind. Damage from the flooding was very small due to the extensive damage from the June floods. However, despite the lateness of the season, some crops had been replanted and were destroyed for a third time this season.

Minor flash flooding occurred on Black Branch Creek at Rockwood, in Roane County, Tennessee, on the 24th, from heavy rainfall during a local thunderstorm. Flood waters as much as 1 foot deep were reported in several business establishments.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

JULY 1958

There was some flooding along the main stem of the Ohio near the mouth of the Wabash River from Uniontown, Ky., to Fords Ferry, Ky., and from Grand Chain, Ill., to Cairo, Ill., between the 22d and the first part of August. Flood stage was exceeded by nearly 4 feet at Cairo, Ill., on the 27th. This high water was due to frequent heavy showers and thunderstorms and high flow from the Wabash. Flood damage was mostly agricultural and was very heavy considering the small acreage involved. There was some damage to roads, fences, and pastures.

Arkansas Basin.--Lowland flooding occurred in the Arkansas drainage in Colorado on the 5th and 6th. Some of the streams in flood were the Huerfano River, the Apishpa, Timpas Creek, and the Purgatoire River at Higbee. The Apishpa was again in flood on the 12th. The overflows were of brief duration and due to heavy precipitation, associated with thunderstorms. The flash flood on Timpas Creek caused some damage to a store and feed company at Roberta. The high water on the Purgatoire River resulted in some damage to a bridge near Higbee, Colo.

There was considerable flooding in the Arkansas Basin in Kansas from the frequent heavy rains. The most serious flooding occurred from the 17th to the 19th following heavy rains up to 4 inches. The Little Arkansas crested about 5.5 feet over bankfull stage at Sedgwick, Kans. The Verdigris crested at Coyville over 10 feet above bankfull stage. Locally heavy rains at Kechi, Kans., caused some flooding on the middle branch of Chisholm Creek in Park City (suburban area north of Wichita, Kans.). Minor flooding occurred on the Pawnee River at Larned and Sanford, Kans., during the latter part of the month.

Four to 6 feet of flooding occurred along the Neosho River in the vicinity of Commerce and Miami, Okla., on the 12th and 13th. Spring River near Quapaw, Okla., was a foot above flood stage on the 12th and almost 2 feet above on the 25th and 26th. The Illinois River near Tahlequah, Okla., overflowed 6 to 7 feet on the 13th. There was extensive crop damage along the Neosho River near Miami, Okla. Some farm buildings and public property in the vicinity were flooded; also some rural highways and bridges were washed out. There was some loss of income and wages due to suspension of business. Damages along the Illinois River near Tahlequah, Okla., were mainly to hay and corn crops in lowland areas.

The Canadian River reached bankfull stage at

Canadian, Tex., on the 21st. No damage was reported.

Serious, near record, agricultural flooding occurred on the Arkansas River from Great Bend, Kans., to Wichita during the last few days of July and the first part of August. The crest of 11.5 feet at Great Bend was the highest stage of record for that station.

Red Basin.--Light flooding occurred on the Sulphur River at Naples, Tex., from the 10th to the 15th due to heavy rains from the 5th through the 7th. Little or no damage resulted as the areas flooded were mostly grazing lands.

Lower Mississippi Basin.--The flooding on the St. Francis River between the 20th and the end of the month was due to heavy rain on the 16th, 17th, and 21st. The moderately heavy rains on the 21st came at the time the discharge from the rain reported on the 16th and 17th reached Wappapello Dam. The river below the dam was very low at the time of the rains. Flooding was confined to low areas along the river inside substandard levees and to swampy areas which in dry weather are used as pastures. The losses were considerably reduced as a relatively small amount of land inside the levees had been planted in crops.

The only flooding along the main stem of the Mississippi occurred at Caruthersville, Mo., from the 26th to August 1. Overflow was confined to relatively low unprotected areas between the levee and the river in Missouri and Arkansas, and to considerable areas in west Tennessee. The loss was reduced considerably as the wet spring prevented the farmers from planting large lowland areas, which are usually planted in crops.

WEST GULF OF MEXICO DRAINAGE

The minor flooding on the Sabine River at Mineola, Tex., from the 9th to the 14th was due to heavy rains from the 5th through the 7th. Little or no damage resulted from the flooding since the areas flooded were mostly grazing lands.

Very heavy rain during the late morning and early afternoon of the 7th over the north portions of San Antonio, Tex., caused considerable flooding of small streams. Approximately 50 houses were damaged. There was also considerable damage to streets from surface runoff.

The Nueces River at Tilden Crossing, Tex., receded below flood stage on the 13th after cresting 8.3 feet above flood stage on the 3d. Only minor damage resulted from this flood, as this area of the river is mostly pastureland.

FLOOD STAGE DATA

(All dates in July unless otherwise specified)

JULY 1958

River and station	Flood stage	Above flood stages -dates		Crest *		River and station	Flood stage	Above flood stages -dates		Crest *	
		From--	To--	Stage	Date			From--	To--	Stage	Date
ATLANTIC SLOPE DRAINAGE						MISSISSIPPI SYSTEM (Cont'd.) Missouri Basin (Cont'd.)					
Rock Creek: Washington, D. C.	7	9	9	7.4	9	South Fork Solomon: Damar, Kans.	7	17	17	10.2	17
Saluda: Pelzer, S. C.	6	10	10	6.0	10	Osborne, Kans.	12	17	18	#13.3	17
Savannah: Clio, Ga.	11	23	25	11.2	24	Chapman Creek: Chapman, Kans.		3	3	23.6	3
EAST GULF OF MEXICO DRAINAGE						Solomon: Beloit, Kans.	20	18	19	21.9	19
Pearl: Jackson, Miss.	18	11	13	19.2	12	Frenchman Creek: Palisade, Nebr.	7	18	20	7.7	19
Bogalusa, La.	15	June 19	3	17.0	June 24	Stinking Water Creek: Palisade, Nebr.	10	19	20	10.3	19
		11	13	17.0	13	Little Blue: Fairbury, Nebr.	10	11	12	10.8	12
		27	29	16.2	28			24	25	12.8	25
Pearl River, La.	12	16	17	12.1	16	Black Vermillion Creek: Frankfort, Kans.	19	11	13	25.7	12
MISSISSIPPI SYSTEM Upper Mississippi Basin							15	16	20.0	16	
Raccoon: Redfield, Iowa	14	2	3	29.0	2		17	18	23.55	18	
		3	5	19.3	4		31	Aug. 1	28.2	31	
		19	19	15.8	19	Big Blue: Ulysses, Nebr.	15	24	24	16.5	24
Van Meter, Iowa	13	2	5	21.8	3	Crete, Nebr.	16	11	12	19.1	11
		19	20	13.7	20		20	30	17.8	22	
Des Moines (SW 18th St.), Iowa	12	3	6	17.1	4				20.3	24	
									19.3	26	
									20.0	28	
Des Moines: Des Moines (Scott St.), Iowa	13	4	5	14.95	4	Beatrice, Nebr.	16	11	11	16.35	11
Tracy, Iowa	14	2	11	17.0	7		25	26	17.6	26	
		20	21	14.1	21	Barneston, Nebr.	18	11	12	25.65	11
Eddyville, Iowa	15	2	8	19.0	3		17	18	21.2	17	
		20	21	15.8	21		24	26	23.5	25	
Ottumwa, Iowa	9	3	7	10.85	4	Marysville, Kans.	35	11	12	38.0	12
Fox: Wayland, Mo.	15	31	Aug. 1	15.6	31		25	25	35.25	25	
Salt: New London, Mo.	19	16	19	21.0	17	Blue Rapids, Kans.	20	11	13	26.1	12
		20	23	27.15	22		18	19	24.95	18	
		31	Aug. 4	29.75	Aug. 2		25	27	25.75	26	
Vermillion: Lowell, Ill.	10	14	17	14.2	15	Randolph, Kans.	22	13	13	22.8	13
Sangamon: Riverton, Ill.	13	13	31	17.9	17		18	18	22.2	18	
				15.8	31	Mill Creek: Paxico, Kans.	14	11	11	20.6	11
Illinois: Morris, Ill.	13	14	16	15.3	15		17	17	20.15	17	
La Salle, Ill.	20	15	18	24.8	16	Delaware: Valley Falls, Kans.	22	12	12	25.4	12
Peoria, Ill.	18	19	19	18.0	19		31	Aug. 1	29.15	Aug. 1	
Havana, Ill.	14	June 14	1	17.0	June 20-21	Wakarusa: Lawrence, Kans.	23	11	11	24.7	11
		4	7	14.4	6		17	17	23.45	17	
		18	31	15.9	21	Stranger Creek: Tonganoxie, Kans.	23	11	14	27.65	13
Beardstown, Ill.	14	June 15	11	17.7	June 22		31	Aug. 3	29.5	1	
		16	31	16.9	22	Blue: Kansas City, Mo.	21	17	17	23.2	17
Meramec: Steelville, Mo.	12	16	17	14.6	17		31	31	38.0	31	
Sullivan, Mo.	11	18	19	14.65	18	Crooked: Richmond, Mo.	18	15	16	21.8	16
Pacific, Mo.	11	18	21	15.4	20	Wakenda: Carrollton, Mo.	15	20	20	16.85	20
Valley Park, Mo.	16	19	21	18.5	20	Grand: Pattonsburg, Mo.	25	15	17	29.75	16
Kaskaskia: Shelbyville, Ill.	13	15	18	14.1	17		19	21	29.1	20	
		31	1/	14.5	31	Chillicothe, Mo.	24	16	22	30.1	16
Vandalia, Ill.	18	16	21	18.4	18		31	Aug. 2	29.4	31	
Carlye, Ill.	21	19	31	24.7	24	Sumner, Mo.	26	15	25	36.6	18
Mississippi: Alton, Ill.	21	21	25	24.5	24	Brunswick, Mo.	12	12	27	22.9	22
Chester, Ill.	27	21	27	29.3	25	Chariton: Novinger, Mo.	20	15	16	22.0	16
								19	19	21.0	19
Cape Girardeau, Mo.	32	Aug. 4	Aug. 7	32.7	Aug. 6		30	Aug. 2	23.0	Aug. 1	
Missouri Basin						Prairie Hill, Mo.	17	15	17	19.7	16
North Fork: Pierce, Nebr.	12	30	31	14.1	30			20	20	18.0	20
Elkhorn: West Point, Nebr.	10	30	30	11.9	30			31	Aug. 2	20.2	Aug. 1
Nishnabotna: Red Oak, Iowa	15	3	3	22.4	3	Lamine: Clifton City, Mo.	19	18	22	28.0	21
						Petite Saline: Boonville, Mo.	16	15	16	18.2	16
Randolph, Iowa	19	2	3	22.4	3			18	19	19.1	18
Hamburg, Iowa	18	2	7	23.4	6			25	25	16.2	25
Nemaha: Falls City, Nebr.	20	10	12	28.1	11	Moniteau: Fayette, Mo.	16	15	15	18.4	15
Tarkio: Fairfax, Mo.	17	3	4	17.9	3	Moreau: Jefferson City, Mo.	20	18	18	21.0	18
		19	19	20.85	19	Marmaton: Ft. Scott, Kans.	30	12	12	32.2	12
		30	30	20.0	30			16	18	37.7	16
Nodaway: Clarinda, Iowa	14	3	3	16.5	3	Pottawatomie Creek: Garnett, Kans.	26	17	17	26.8	17
		30	30	14.6	30	Sac: Stockton, Mo.	18	11	11	21.3	9
Platte: Agency, Mo.	20	15	17	22.9	16			16	19	25.5	17
		31	Aug. 2	21.1	Aug. 1			26	26	18.0	26
						Pomme de Terre: Hermitage, Mo.	22	17	18	27.4	18
						Niangua: Decaturville, Mo.	84	17	19	88.6	18

FLOOD STAGE DATA

(All dates in July unless otherwise specified)

JULY 1958

River and station	Flood stage	Above flood stages -dates		Crest*	
		From--	To--	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.) Missouri Basin (Cont'd.)					
Marais des Cygnes: Quenemo, Kans.	28	18 21	18 21	30.5 30.4	18 21
Ottawa, Kans.	23	11 17	11 19	23.5 24.5	11 18
Osawatomie, Kans.	28	11 17	13 23	33.0 33.4	12 20
LaCygne, Kans.	25	12 17	15 27	30.1 30.3	13 22
Trading Post, Kans.	24	14	27	27.6 27.7	18 25
Osage: Schell City, Mo.	25	13	31	36.4	20
Osceola, Mo.	22	18	31	33.5	20
St. Thomas, Mo.	23	19	29	27.3	23
Gasconade: Hazelgreen, Mo.	21	17	18	25.3	18
Jerome, Mo.	15	18	20	21.9	19
Rich Fountain, Mo.	20	20	21	21.6	20
Missouri: St. Joseph, Mo.	17	11 31	12 31	18.9 17.3	11 31
Lexington, Mo.	22	12 21 31	13 21 2	23.55 22.35 23.7	12 21 Aug. 1
Waverly, Mo.	18	11 19 31	16 22 Aug. 4	23.0 21.3 23.4	13 21 Aug. 3
Glasgow, Mo.	25	13 18	14 24	25.9 28.8	13 22
Boonville, Mo.	21	13 17	14 25	21.1 25.8	14 22
Jefferson City, Mo.	23	18	26	27.2	23
Herman, Mo.	21	14	29	28.9	23
St. Charles, Mo.	25	15	29	32.6	25
Ohio Basin					
Little Shenango: Greenville, Pa.				13.5	16
Shenango: Sharpsville, Pa.	10	15	17	14.0	16
Sharon, Pa.	13	15	17	16.75	16
Mahoning Creek: Punxsutawney, Pa.	7			10.9	15
Little Kanawha: Glenville, W. Va.	23	23	24	28.5	24
Hocking: Athens, Ohio	17	23	25	18.2	24
Paint Creek: Bourneville, Ohio	10	23	23	12.85	23
Scioto: La Rue, Ohio	11	12	12	11.0	12
Circleville, Ohio	14	23	23	14.45	23
Piketon, Ohio	16	23	27	20.9	24
Little Miami: Kings Mills, Ohio	17	22	23	20.1	23
Milford, Ohio	12	22	23	14.4	22
East Fork: Seymour, Ind.	14	23	23	16.8	23
White: Edwardsport, Ind.	15	14	17	16.0	16
Petersburg, Ind.	16	16 23	21 1/	19.5 19.6	18 25, 27
Hazleton, Ind.	16	15	1/ 20.15	20.6 20.15	19 26
Skillet Fork: Wayne City, Ill.	15	18 21	19 25	16.8 16.8	19 23
Little Wabash: Wilcox, nr., Ill.	16	15	15		
Wabash: Wabash, Ind.	12	16	17	17.4	16
Lafayette, Ind.	11	15	19	18.4	17
Covington, Ind.	16	13 15	13 21	16.1 22.4	13 18
Montezuma, Ind.	14	12	23	21.95	19
Clinton, Ind.	18	13	22	21.4	19
Terre Haute, Ind.	14	13	24	18.3	20
Hutsonville, Ill.	A20	20	26	21.1	22-23
Riverton, Ind.	18	21	25	18.9	23

River and station	Flood stage	Above flood stages -dates		Crest *	
		From--	To--	Stage	Date
<u>MISSISSIPPI SYSTEM (Cont'd.)</u>					
<u>Ohio Basin (Cont'd.)</u>					
<u>Wabash (Cont'd.):</u>					
Vincennes, Ind.	16		1 27	27.1 19.3	June 21 24
Mt. Carmel, Ill.	17	15	30	21.2	26
New Harmony, Ind.	15	17	30		
Ohio: Dam No. 49, Uniontown, Ky.	37	28	30	37.2	29
Shawneetown, Ill.	33	23	1/		
Dam No. 50, Fords Ferry, Ky.	34	22	1/	38.6	29
Dam No. 53, Grand Chain, Ill.	42	24	31	43.0	27-28
Cairo, Ill.	40	22	Aug. 10	43.8	27
<u>Arkansas Basin</u>					
Pawnee: Larned, nr., Kans.	27	27	29	28.3	28
Little Arkansas: Sedgwick, Kans.	18	16	18	23.4	17
Walnut: Arkansas City, Kans.	18	4	5	20.8	5
Verdigris: Coyville, Kans.	28	4 12 16	5 12 18	30.4 29.6 38.3	5 12 17
Altoona, Kans.	23	19	20	25.75	19
Cottonwood: Emporia, Kans.	20	17	18	20.6	17
Spring: Quapaw, Okla.	19	12 25	12 26	#20.2 #21.3	12 25
Neosho: Emporia, Kans.	22	21	21	23.0	21
Burlington, Kans.	27	17	17	27.5	17
LeRoy, Kans.	23	16	18	25.7	17
Iola, Kans.	15	11 16	12 18	16.7 25.7	12 17
Chanute, Kans.	20	12 16	13 20	22.1 23.7	12 18
Parsons, Kans.	24	12	13	24.2	13
Oswego, Kans.	17	12 17	15 22	23.1 21.1	13 19
Commerce, Okla.	15	12	23	#20.7	12
Illinois: Tahlequah, Okla.	11	13	14	17.5	13
Canadian: Canadian, Tex.	8	21	21	8.0	21
Arkansas: Great Bend, Kans.	8	28	Aug. 2	11.5	30
Hutchinson, Kans.	6	8 16 20 28	11 17 22 Aug. 4	7.1 6.1 6.3 9.0	10 16 21 Aug. 2
Arkansas City, Kans.	16	4	4	16.6	4
<u>Red Basin</u>					
Sulphur: Naples, Tex.	22	10	15	24.5	13
<u>Lower Mississippi Basin</u>					
St. Francis: Fisk, Mo.	20	20	27	23.1	23
St. Francis, Ark.	18	26	31	18.9	29
Mississippi: Caruthersville, Mo.	32	26	Aug. 1	32.7	28-29
<u>WEST GULF OF MEXICO DRAINAGE</u>					
Sabine: Mineola, Tex.	14	9	14	15.2	11
Nueces: Tilden Crossing, Tex.	11	June 28	13	19.3	3

* Provisional
Highest stage observed
1/ Continued at end of month
A Tentative

Average monthly values

JUL 1978

ALBANY, N. Y. (1004 MB.)										ALBUQUERQUE, N. MEX. (839 MB.)										AMARILLO, TEX. (892 MB.)										ANCHORAGE, ALASKA (1009 MB.)										ANNETTE, ALASKA (1015 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height	Temperature	Relative humidity		Wind		Number of observations	Dynamic height	Temperature	Relative humidity		Wind		Number of observations	Dynamic height	Temperature	Relative humidity		Wind		Number of observations	Dynamic height	Temperature	Relative humidity		Wind		Number of observations	Dynamic height	Temperature	Relative humidity		Wind														
					Direction	Speed	Direction	Speed				Direction	Speed	Direction	Speed				Direction	Speed	Direction	Speed				Direction	Speed	Direction	Speed				Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	
SURFACE	31	126	18.1	91	234	2.3	31	1,619	19.7	55	112	4.4	31	1,095	19.5	81	181	5.6	31	30	11.9	83	183	2.5	31	37	13.6	87	310	2.3																			
1,000----	31	183			245	2.9	31	75					31	90					31	102	12.4	78	171	2.9	31	160	13.9	84	323	5.0																			
950----	31	565	17.6	80	266	8.3	31	522					31	535					31	529	10.6	73	146	5.0	31	594	13.3	77	328	7.5																			
900----	31	1,026	15.4	77	282	11.2	31	1,007					31	1,013					31	980	7.8	74	134	9.7	31	1,048	11.9	70	316	6.0																			
850----	31	1,510	12.9	75	284	14.7	31	1,509					31	1,510	20.9	37	212	13.6	31	1,450	4.8	76	136	12.8	31	1,525	10.3	59	281	6.6																			
800----	31	2,018	10.3	69	281	18.6	31	2,035	20.1	42	175	3.1	31	2,023	19.3	47	238	13.9	31	1,942	2.0	77	143	17.7	31	2,027	7.8	55	273	6.6																			
750----	31	2,554	8.1	60	277	23.1	31	2,587	17.4	40	264	4.0	31	2,577	16.3	45	271	13.6	31	2,456	8.7	155	14.5	31	2,512	4.8	50	271	7.7																				
700----	31	3,122	5.3	54	275	25.6	31	3,174	13.1	42	290	8.5	31	3,169	12.1	47	268	11.6	31	3,009	-4.1	73	159	15.7	31	3,116	1.4	51	271	9.7																			
650----	31	3,723	2.2	50	271	28.7	31	3,789	8.3	45	296	8.9	31	3,779	7.5	50	267	11.2	31	3,584	-7.3	69	159	15.9	31	3,703	-1.6	48	279	13.7																			
600----	31	4,368	-1.1	45	271	33.0	31	4,449	3.0	53	281	8.7	31	4,439	-2.8	52	262	12.2	31	4,211	-10.8	65	165	17.2	31	4,343	-5.2	42	283	14.5																			
550----	31	5,052	-4.9	44	269	36.3	31	5,142	-2.6	58	263	10.2	31	5,127	-2.3	52	273	13.4	31	4,868	-14.6	61	170	17.0	31	5,042	-9.4	38	271	16.3																			
500----	31	5,802	-9.3	37	268	38.6	31	5,897	-7.3	53	264	13.9	31	5,888	-7.4	48	275	12.6	31	5,591	-19.4	58	178	16.7	31	5,752	-14.0	35	269	18.4																			
450----	31	6,604	-14.3	43	270	41.7	31	6,710	-12.1	42	267	16.1	31	6,699	-12.5	41	276	14.5	31	6,359	-24.6	53	181	16.5	31	6,537	-19.3	38	272	20.0																			
400----	31	7,495	-20.4	43	269	47.2	31	7,605	-18.2	42	267	18.0	31	7,590	-18.5	35	281	14.9	31	7,135	-30.9	59	187	21.1	31	7,317	-25.7	40	261	20.4																			
350----	31	8,471	-27.2	40	268	51.6	31	8,588	-25.4	35	268	20.9	31	8,573	-25.1		284	16.9	31	8,148	-37.8	51	193	22.5	31	8,365	-32.9	38	265	19.4																			
300----	31	9,565	-35.0	36	268	57.3	31	9,688	-33.6	35	271	25.2	31	9,675	-33.1		283	18.0	31	9,195	-44.9		196	17.7	30	9,430	-41.3		269	18.8																			
250----	31	10,812	-44.3		265	65.2	31	10,941	-43.1		269	28.3	31	10,932	-42.6		282	20.0	31	10,397	-50.3		195	14.9	30	10,644	-50.1		274	20.5																			
200----	31	12,275	-54.3		276	69.3	31	12,413	-52.7		274	32.0	31	12,405	-52.9		280	20.4	31	11,856	-48.6		206	13.0	30	12,079	-55.5		283	21.1																			
175----	31	13,123	-58.5		279	64.8	31	13,266	-57.8		271	28.5	31	13,256	-58.1		282	21.7	31	12,737	-47.1		208	11.6	30	12,933	-54.1		272	17.2																			
150----	31	14,086	-60.8		276	55.1	31	14,225	-63.4		274	23.1	31	14,217	-63.7		285	21.7	31	13,758	-47.5		192	9.7	30	13,926	-52.9		270	13.6																			
125----	31	15,118	-61.8		272	37.8	31	15,229	-63.9		273	20.4	31	15,214	-63.9		288	18.2	31	14,661	-47.9		198	11.2	30	14,861	-52.6		284	17.4																			
100----	31	16,603	-61.3		276	24.0	31	16,659	-69.9		280	13.2	31	16,651	-65.0		305	10.0	31	16,434	-47.9		185	7.9	30	16,545	-52.4		290	9.3																			
75----	31	17,994	-58.7		294	8.3	30	18,002	-65.3		112	1.1	19	17,990	-67.9		63	-1.4	31	17,908	-47.5		162	5.8	30	17,989	-52.0		280	4.2																			
60----	31	19,823	-54.0		70	6.0	30	19,781	-58.8		83	11.8	19	19,769	-58.5		92	11.0	30	19,810	-47.3		135	6.2	30	19,858	-50.7		32	4.0																			
50----	31	21,001	-51.6		84	10.1	30	20,936	-55.5		89	16.9	19	20,922	-55.8		96	15.9	29	21,020	-46.8		117	7.7	28	21,047	-49.4		70	5.2																			
40----	29	22,456	-49.3		87	12.2	30	22,368	-52.5		90	18.6	18	22,351	-52.6		91	19.4	29	22,501	-46.3		106	10.4	28	22,515	-48.0		80	8.5																			
30----	28	24,351	-46.6		89	17.8	29	24,242	-49.3		87	19.8	14	24,214	-48.6		92	24.2	27	24,413	-45.5		96	13.0	28	24,421	-46.0		87	8.7																			
25----	24	25,661	-44.6		88	18.0	26	25,436	-47.4		84	23.3	8	25,418	-46.7				22	25,663	-44.2		102	13.6	25	25,641	-44.7		88	12.4																			
20----	9	27,051	-42.3				9	26,897	-47.4										11	27,131	-42.7				13	27,125	-42.7																						
15----																									5	29,087	-40.2																						

ATHENS, GA. (990 MB.)										BARROW, ALASKA (1012 MB.)										BARTER IS., ALASKA (1010 MB.)										BETHEL, ALASKA (1008 MB.)										BISMARCK, N. DAK. (955 MB.)									
SURFACE	31	246	21.6	96	237	3.1	31	8	2.3	95	78	6.2	31	15	5.8	95	89	4.8	31	4	11.0	89	290	0.7	31	505	12.8	88	289	0.7																			
1,000--	31	156					31	104	2.9	94	95	6.6	31	97	6.4	92	90	6.2	31	72	11.1	85	328	1	31	109																							
950--	31	603	22.6	82	259	8.9	31	527	8.1	85	130	7.3	31	524	9.9	77	105	7.5	31	495	9.4	78	112	3.6	31	545			313																				
900--	31	1,075	20.3	79	260	9.3	31	772	7.9	72	160	5.2	31	971	9.3	65	114	3.3	31	946	6.5	81	135	6.0	31	1,005	16.1	64	265	5.0																			
850--	31	1,568	17.4	77	250	10.4	31	1,443	5.7	63	189	5.0	31	1,443	6.8	59	185	17.7	31	1,414	3.7	80	142	7.1	31	1,489	13.5	59	281	7.3																			
800--	31	2,084	14.4	72	241	11.9	31	1,927	3	59	193	5.1	31	2,043	3.4	57	243	3.4	31	2,107	3.4	81	142	7.1	31	2,161	16.0	28	60	286	9.9																		
750--	31	2,623	11.3	69	237	12.4	31	2,455	-1	55	228	6.4	31	2,459	-2	57	263	4.0	31	2,416	-2.1	79	127	9.1	31	2,530	6.9	57	293	12.0																			
700--	31	3,201	8.1	65	234	10.6	31	3,007	-3.4	53	225	7.1	31	3,011	-3.1	54	256	5.4	31	2,967	-4.7	72	130	8.7	31	3,096	3.5	54	293	15.1																			
650--	31	3,806	4.6	61	234	10.6	31	3,585	-6.6	46	224	7.5	31	3,588	-6.6	46	265	5.4	31	3,541	-7.8	66	123	8.5	31	3,692	1.1	51	292	17.9																			
600--	31	4,459	9	61	235	10.8	31	4,212	-10.5	43	228	8.7	31	4,216	-10.4	39	269	7.1	31	4,166	-11.6	62	119	7.3	31	4,332	-3.6	47	290	19.2																			
550--	31	5,146	-2.9	54	237	10.2	31	4,869	-14.8	41	233	8.7	31	4,875	-14.9	39	274	8.1	31	4,824	-15.7	57	109	8.3	31	5,008	-7.7	43	284	20.2																			
500--	31	5,904	-7.1	47	234	10.1	31	5,590	-19.6	38	245	10.4	31	5,596	-19.7	40	272	8.1	31	5,541	-20.4	56	99	8.5	31	5,751	-12.3	37	283	22.9																			
450--	31	6,717	-11.7	45	232	10.6	31	6,357	-25.3	36	249	10.3	31	6,362	-25.2	38	271	8.9	31	6,305	-25.9	51	108	8.1	31	6,530	-17.9	35	285	26.4																			
400--	31	7,727	-17.2	42	231	10.3	31	7,342	-31.8		252	10.2	31	7,347	-31.8	39	280	11.4	31	7,157	-32.9	49	88	4.4	31	7,419	-31.8	37	274	22.7																			
350--	31	8,602	-24.3	37	253	9.9	31	8,142	-38.7		254	9.3	31	8,148	-38.4		280	11.6	31	8,087	-38.9	87	84	4	31	8,378	-35		275	26.4																			
300--	31	9,708	-32.6		260	9.9	31	9,184	-46.6		254	9.7	31	9,190	-46.3		283	13.4	31	9,129	-45.6			4	31	9,449	-40.3		269	33.2																			
250--	31	10,966	-42.6		267	8.5	30	10,376	-52.7		252	8.5	31	10,384	-52.7		277	14.9	31	10,331	-49.5		311	5.6	31	10,670	-48.9		264	41.5																			
200--	30	12,439	-53.7		200	9.9	30	11,829	-47.4		227	7.3	31	11,841	-47.2		267	9.9	31	11,803	-45.8		282	6.2	31	12,117	-53.2		262	43.1																			
175--	30	13,286	-59.5		318	8.7	30	12,716	-45.7		235	8.1	29	12,728	-46.0		265	7.9	31	12,693	-45.6		263	4.6	30	12,976	-53.8		270	36.1																			
150--	30	14,239	-64.9		344	8.3	30	13,745	-45.3		244	7.3	29	13,755	-45.3		256	7.3	31	13,721	-45.6		257	3.1	30	13,965	-54.4		278	31.1																			
125--	30	15,349	-68.7		345	7.1	30	14,962	-45.2		218	5.0	27	14,965	-45.2		255	4.4	31	14,934	-45.6		281	3.8	31	15,133	-56.2		286	24.6																			
100--	30	16,671	-69.5		360	3.6	30	16,153	-44.8		205	4.8	27	16,155	-45.7		198	1.1	31	16,145	-46.7		191	3.8	30	16,555	-56.2		274	15.3																			
80--	29	18,015	-65.4		56	9.3	30	17,949	-43.9		213	2.3	27	17,946	-44.6		220	2.7	31	17,896	-46.6		151	2.9	29	17,977	-54.5		320	9.5																			
60--	28	19,790	-59.2		71	14.7	30	19,885	-43.1		115	2.9	26	19,875	-43.6		94	3.4	30	19,805	-46.7		115	4.6	28	19,833	-51.7		31	3.6																			
40--	28	20,942	-56.0		87	18.6	29	21,117	-42.6		100	3.8	25	21,103	-43.0		98	3.6	30	21,015	-46.4		94	6.4	28	21,019	-50.1		72	9.3																			
20--	28	22,372	-52.6		91	22.5	28	22,625	-42.1		93	7.5	25	22,608	-42.7		87	5.8	29	22,499	-46.2		91	8.9	27	22,484	-47.6		75	11.2																			
0--	26	24,241	-50.0		89	23.1	28	24,576	-41.1		95	13.6	23	24,561	-41.4		94	9.7	21	24,415	-45.5		84	11.0	24	24,395	-45.0		88	15.7																			
30--	24	25,439	-50.8		88	25.8	24	25,817	-40.1		94	14.1	20	25,804	-40.3		93	11.0	16	25,632	-44.2		87	14.1	21	25,632	-44.2		86	15.7																			
60--	19	28,919	-43.2		93	21.6	11	27,357	-38.3				18	27,333	-38.1		79	12.4	9	27,119	-43.6				21	27,130	-43.9																						
15--	13	28,829	-43.2		87	34.0							14	29,333	-35.0		92	13.6							12	29,089	-38.9																						
10--													5	32,181	-30.6																																		

BOISE, IDAHO (914 MB.)						BROWNSVILLE, TEX. (1013 MB.)						BUFFALO, N. Y. (992 MB.)						BURRWOOD, LA (1017 MB.)						CAPE HATTERAS, N. C. (1017 MB.)							
SURFACE	31	868	16.6	60	169	2.9	31	7	24.8	97	149	4.0	31	182	18.1	86	227	2.1	30	3	27.1	86	187	3.4	31	4	25.3	91	224	6.6	
1,000--	31	94					31	124	25.2	91	157	9.1	31	116			30	149	26.2	84	189	4.2	31	154	24.7	88	238	12.0			
950--	31	535					31	573	23.3	84	167	19.8	31	558	18.2	74	257	5.8	30	600	23.4	82	186	5.2	31	599	22.3	81	254	14	
900--	31	1,004	18.9	49	201	1.1	31	1,047	21.2	74	167	21.7	31	1,020	16.1	67	267	9.3	30	1,073	20.8	76	184	6.2	31	1,074	19.8	75	250	14.1	
850--	31	1,497	19.2	37	323	4.4	31	1,541	18.9	63	164	20.5	31	1,504	13.1	68	265	11.6	30	1,566	17.9	72	179	5.8	31	1,566	17.0	68	250	13.0	
800--	31	2,015	16.1	39	324	5.0	31	2,061	16.3	56	155	16.1	31	2,012	10.4	64	261	14.3	30	2,084	14.9	68	183	6.0	31	2,081	14.1	65	246	13.2	
750--	31	2,537	12.2	42	315	4.4	31	2,593	11.4	50	146	13.2	31	2,544	8.9	59	263	15.2	30	2,617	12.3	65	187	4.6	31	2,617	12.3	61	246	14	
700--	31	3,133	7.6	48	288	7.5	31	3,186	10.1	46	137	10.4	31	3,115	5.1	51	264	20.2	30	3,203	8.6	59	175	3.4	31	3,198	8.2	53	246	14.5	
650--	31	3,737	3.1	50	277	10.8	31	3,790	6.3	44	126	8.9	31	3,714	1.9	47	266	22.5	30	3,810	5.1	58	141	1.5	31	3,799	4.9	48	243	14.7	
600--	31	4,384	-1.1	47	267	12.6	31	4,450	2.3	38	107	8.9	31	4,360	-1.3	43	267	25.2	30	4,463	1.3	60	103	3.1	31	4,456	1.2	46	243	14.7	
550--	31	5,066	-5.7	42	268	14.5	31	5,140	-1.8	36	101	7.3	31	5,039	-5.4	42	265	26.0	30	5,154	-2.8	58	63	3.4	31	5,144	-2.6	44	241	15.5	
500--	31	5,814	-10.8	37	263	15.9	31	5,900	-6.5	36	96	6.6	31	5,791	-9.6	44	264	31.4	30	5,909	-7.2	53	69	3.3	31	5,903	-6.9	38	245	14.3	
450--	31	6,610	-16.6		268	17.8	31	6,711	-11.7	35	79	6.0	31	6,589	-14.7		263	33.8	30	6,723	-11.9	47	87	1.3	31	6,709	-11.8	87	249	14.4	
400--	31	7,393	-21.9		270	18.4	31	7,616	-21.6	32	76	7.1	31	7,481	-22.7	39	263	38.4	30	7,616	-21.9	47	77	2.3	31	7,617	-21.9	87	249	14.4	
350--	31	8,455	-30.5		281	11.2	31	8,595	-24.9		89	8.5	31	8,453	-27.2		263	43.1	30	8,601	-24.7	39	44	2.9	31	8,596	-24.6	34	255	11.6	
300--	31	9,532	-38.9		305	10.6	31	9,697	-32.9		72	4.8	31	9,549	-36.6		268	49.9	30	9,704	-33.3		43	3.6	31	9,700	-32.9	32	263	11.2	
250--	31	10,759	-47.9		306	12.2	31	10,954	-42.6		45	4.4	31	10,795	-44.3		269	58.0	30	10,958	-43.1		59	7.1	31	10,957	-42.6		273	12.4	
200--	31	12,209	-53.9		274	16.5	31	12,425	-53.7		39	7.1	31	12,261	-53.4		270	64.8	30	12,426	-54.2		54	10.4	31	12,427	-54.1		295	11.4	
175--	31	13,065	-54.8		265	19.0	31	13,272	-59.5		42	10.1	29	13,116	-57.1		273	60.4	30	13,270	-60.1		58	13.4	31	13,273	-59.6		300	13.6	
150--	31	14,048	-56.1		271	17.6	31	14,223	-65.5		47	13.7	29	14,087	-59.1		273	46.6	30	14,219	-65.1		54	15.7	31	14,226	-64.6		309	10.2	
125--	30	15,580	-58.2		268	16.5	29	15,317	-70.6		57	19.2	28	15,222	-60.5		269	34.1	30	15,318	-69.5		55	17.0	31	15,323	-67.7		299	6.6	
100--	28	16,603	-59.5		271	9.3	29	16,603	-67.1		64	21.1	27	16,607	-61.9		270	46.1	30	16,644	-70.4		78	18.2	31	16,649	-69.6		311	3.8	
80--	28	18,002	-58.8				29	17,961	-67.6		75	21.3	25	18,003	-57.9		274	11.0	29	17,978	-67.2		80	16.7	31	18,029	-63.7		42	5.4	
60--	27	19,820	-55.4				29	19,721	-61.1		83	28.3	25	19,835	-53.8		334	1.1	28	19,743	-60.2		89	23.7	31	19,824	-57.1			78	13.0
40--	27	20,989	-53.1				29	20,863	-57.8		86	32.4	25	21,014	-51.2		84	6.9	28	20,890	-56.7		97	28.5	30	20,987	-54.1			83	17.8
20--	25	22,433	-50.6				28	22,284	-54.2		87	37.4	24	22,472	-48.6		83	10.1	28	22,316	-53.5		101	28.5	30	22,432	-51.0			91	22.3
0--	22	24,319	-48.1				27	24,145	-50.1		86	43.7	24	24,377	-45.7		84	13.6	25	24,182	-49.7		98	34.5	29	24,316	-47.9			92	27.3
25--	17	25,522	-46.3				25	25,342	-47.7		81	43.3	23	25,599	-43.7		90	16.1	23	25,390	-46.9		97	33.6	29	25,525	-46.0			89	25.4
30--	10	27,010	-43.9				11	26,823	-46.1				22	27,011	-44.8		91	15.9	14	26,861	-44.8		98	38.6	28	27,017	-44.7			87	27.3
15--											18	29,094	-37.9				90	21.9	6	28,812	-39.3				28	28,978	-40.5			86	29.3
10--											6	31,897	-34.9												11	31,748	-37.4				

See reference note at end of table

Average monthly values

CARIBOU, ME. (991 MB.)										CHARLESTON, S. C. (1018 MB.)										COLD BAY, ALASKA (1006 MB.)										COLUMBIA, MO. (987 MB.)										DAYTON, OHIO (981 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height		Relative humidity		Wind		Number of observations	Dynamic height		Relative humidity		Wind		Number of observations	Dynamic height		Relative humidity		Wind		Number of observations	Dynamic height		Relative humidity		Wind																					
			Temperature	Direction	Speed	Direction	Speed	Temperature		Direction	Speed	Temperature	Direction	Speed	Temperature		Direction	Speed	Temperature	Direction	Speed	Temperature		Direction	Speed	Temperature	Direction	Speed	Temperature	Direction	Speed																		
SURFACE	31	191	14.7	87	232	3.1	31	13	24.4	96	208	3.6	31	27	8.5	92	184	5.6	31	238	19.7	92	136	2.9	31	297	19.1	85	208	1.3																			
1,000-	31	111				5.0	31	167	24.5	86	223	7.7	31	73			200	3.6	31	123			31	127		31	127		246	6.4																			
950-	31	543	13.8	76	259	5.0	31	613	23.0	78	234	10.6	31	495	5.7	89	136	5.8	31	670	21.1	79	204	5.4	31	1,036	17.5	74	258	11.6																			
900-	31	1,077	12.4	75	277	9.3	31	1,580	17.0	74	232	8.9	31	1,402	2.6	83	118	6.0	31	1,035	19.1	74	256	9.5	31	1,523	14.8	74	258	11.1																			
850-	31	1,979	6.9	71	279	13.6	31	2,096	13.9	70	228	8.9	31	1,891	.5	79	90	1.3	31	2,041	14.1	65	262	12.2	31	2,036	12.3	64	258	16.1																			
800-	31	2,506	4.3	66	281	16.1	31	2,635	10.9	66	230	9.5	31	2,405	-1.9	76	151	1.1	31	2,582	11.2	61	261	12.0	31	2,571	9.7	58	259	17.2																			
750-	31	3,067	1.3	59	280	18.2	31	3,212	7.9	60	229	9.5	31	2,954	-4.7	72	115	1.9	31	3,157	7.8	60	262	15.1	31	3,146	7.0	51	260	19.1																			
700-	31	3,657	-1.6	54	278	20.5	31	3,818	4.6	54	226	9.5	31	3,527	-7.7	66	167	1.7	31	3,758	4.2	57	263	18.0	31	3,749	3.7	49	260	21.1																			
650-	31	4,294	-4.9	52	278	22.1	31	4,469	-9.2	50	227	9.3	31	4,154	-11.3	59	213	1.5	31	4,413	3.3	51	263	19.4	31	4,398	1.4	47	257	24.2																			
600-	31	4,969	-7.7	44	275	26.8	31	5,157	-20.2	47	224	9.1	31	4,875	-15.1	55	180	6.0	31	5,106	-3.2	42	268	18.2	31	5,084	-3.6	42	257	24.2																			
550-	31	5,707	-13.2		279	29.5	30	5,916	-6.9	43	216	8.7	31	5,533	-19.6	48	224	2.9	31	5,853	-8.1	38	266	19.4	31	5,841	-7.9	38	254	26.2																			
500-	31	6,497	-18.2		275	33.0	30	6,724	-11.8	43	222	7.7	31	6,302	-24.9	47	216	5.8	31	6,660	-12.9	35	269	22.1	31	6,648	-12.9		259	26.8																			
450-	31	7,373	-24.0	38	274	39.0	30	7,626	-17.3	36	227	7.7	31	7,156	-31.1	47	221	12.0	31	7,556	-18.7	34	272	24.2	31	7,543	-18.7	35	261	29.3																			
400-	31	8,335	-30.0		274	43.7	30	8,614	-24.2	36	244	5.2	31	8,090	-37.5		232	14.1	31	8,538	-25.3	36	272	27.9	31	8,525	-25.4	37	263	31.0																			
350-	31	9,412	-38.4		275	49.3	30	9,719	-32.6																																								

See reference note at end of table

RAWINSONDE DATA

Average monthly values

JULY 1958

GREEN BAY, WIS. (988 MB.)										GREENSBORO, N. C. (987 MB.)										HILO, T. H. (1014 MB.)										INTERNAT. FALLS, MINN. (969 MB.)										JACKSON, MISS. (1006 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																				
					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed																			
SURFACE	31	210	14.5	91	283	3.1	31	273	21.3	96	223	4.0	31	11	21.6	89	268	5.2	31	360	12.9	85	249	2.3	31	101	23.1	94	198	2.5																			
1,000---	31	109					31	158					31	134	22.4	82	308	3.8	31	91					31	152	23.3	91	215	4.4																			
950---	31	547	17.6	71	277	5.8	31	604	22.1	80	247	11.4	31	581	19.7	84	54	6.8	31	527	14.7	78	233	4.0	31	601	23.3	78	241	13.6																			
900---	31	1,007	15.2	69	278	8.3	31	1,074	20.1	75	255	13.7	31	1,045	16.7	86	64	9.1	31	982	13.6	70	271	9.9	31	1,073	20.5	77	237	12.8																			
850---	31	1,490	12.3	68	268	9.1	31	1,566	17.5	73	259	14.3	31	1,531	13.7	88	56	9.1	31	1,462	10.7	68	277	10.8	31	1,566	17.5	74	233	10.6																			
800---	31	1,996	9.5	59	264	12.0	31	2,083	14.5	69	257	14.3	31	2,041	11.6	79	59	9.9	31	1,965	7.3	67	277	11.2	31	2,082	14.4	72	229	9.1																			
750---	31	2,524	6.7	53	264	15.7	31	2,620	11.2	66	251	14.7	31	2,584	9.5	58	73	6.9	31	2,488	4.0	64	279	13.4	31	2,623	11.1	66	224	7.5																			
700---	31	3,094	3.9	45	269	16.5	31	3,199	8.0	61	249	15.5	31	3,152	8.0	57	84	6.9	31	3,053	1.3	53	283	16.5	31	3,200	8.1	61	226	6.9																			
650---	31	3,690	7.4	45	265	21.3	31	3,804	4.6	57	249	17.0	31	3,762	5.8	58	78	6.2	31	3,644	-1.8	48	282	18.0	31	3,804	4.6	57	231	6.0																			
600---	31	4,333	-2.5	40	264	25.2	31	4,456	-7.7	57	247	16.1	31	4,413	-2.7	57	61	3.8	31	4,280	-5.3	44	278	21.3	31	4,456	-9.7	52	223	3.6																			
550---	31	5,012	-6.3	35	263	28.3	31	5,147	-3.0	53	242	16.1	31	5,108	-1.2	53	357	9.9	31	4,952	-9.2	38	281	23.5	31	5,146	-3.0	45	251	2.1																			
500---	31	5,758	-10.9	32	267	30.6	31	5,901	-7.2	45	243	15.7	31	5,866	-5.3	45	302	4.8	31	5,691	-13.8	36	282	26.2	31	5,900	-7.2	44	241	1.9																			
450---	31	6,552	-16.4		266	30.6	31	6,711	-12.0	41	242	14.5	31	6,681	-10.7	41	286	7.5	31	6,474	-19.4		284	29.5	31	6,713	-11.9	33	268	2.1																			
400---	31	7,435	-22.7		270	36.1	31	7,609	-17.6	40	251	15.5	31	7,581	-17.1	40	284	10.8	31	7,352	-25.5		282	33.2	31	7,607	-17.4	33	211	3.8																			
350---	31	8,402	-29.3		264	33.4	31	8,595	-24.7	37	258	15.9	31	8,570	-23.8	37	270	18.4	31	8,307	-32.5		282	37.8	31	8,595	-24.1		317	5.6																			
300---	31	9,486	-37.1		267	38.4	31	9,698	-32.9		261	15.5	31	9,678	-32.0		268	23.7	31	9,375	-40.7		278	41.7	31	9,486	-37.1		323	6.0																			
250---	31	10,724	-45.8		267	49.5	31	10,956	-42.7		269	16.9	31	10,939	-42.0		265	25.8	31	10,596	-48.3		273	48.5	31	10,963	-41.7		321	7.3																			
200---	31	12,183	-53.9		263	58.0	31	12,426	-54.0		280	16.7	31	12,412	-54.0		257	22.9	31	12,050	-54.3		269	54.7	31	12,439	-52.8		345	9.1																			
175---	31	13,036	-56.5		265	55.9	31	13,272	-59.7		284	14.5	31	13,257	-60.3		254	22.7	31	12,913	-52.3		270	51.1	31	13,290	-58.5		310	4.4																			
150---	31	14,010	-58.0		266	45.6	31	14,224	-64.4		286	14.7	31	14,204	-66.9		242	18.0	31	13,906	-52.2		272	44.1	31	14,247	-63.8		310	4.4																			
125---	31	15,156	-58.9		271	35.1	31	15,329	-67.8		283	10.6	31	15,289	-73.0		224	12.2	31	15,084	-53.1		273	36.5	31	15,351	-68.9		279	9.9																			
100---	31	16,554	-59.6		263	18.2	31	16,669	-67.5		283	5.2	31	16,588	-73.9		136	10.8	31	16,517	-54.2		279	55.6	31	16,681	-69.7		307	7.3																			
80---	31	17,960	-56.9		260	8.3	31	18,024	-64.1		23	3.3	31	17,903	-70.6		97	19.2	31	17,949	-53.3		284	14.3	31	18,024	-65.0		73	10.2																			
60---	31	19,798	-53.7		342	3.8	31	19,811	-58.6		71	9.9	31	19,737	-64.0		95	28.3	31	19,813	-50.6		318	4.2	31	19,798	-53.7		323	28.6																			
50---	31	21,977	-51.5		73	8.3	31	20,966	-55.4		84	15.3	31	20,763	-61.4		86	37.3	31	21,010	-49.3		51	2.7	31	20,957	-53.5		88	22.7																			
40---	31	22,435	-49.3		79	9.7	31	22,400	-52.5		90	19.6	31	22,155	-59.0		92	44.8	31	22,478	-47.5		52	6.2	31	22,389	-52.3		89	25.8																			
30---	31	25,440	-46.3		30	24.74	31	25,474	-49.4		91	22.8	31	25,382	-54.1		91	49.5	31	24,389	-44.6		78	12.2	31	24,268	-48.4		88	28.9																			
25---	31	25,556	-44.7		30	25,475	-47.3		90	23.8	31	24,251	-51.8		90	51.8	31	25,624	-42.4						30	25,475	-46.1		90	32.2																			
20---	31	26,935	-45.4		6	28,901	-44.1		88	24.8	31	26,631	-49.8		89	54.5								25	26,970	-43.8		90	34.3																				
15---	31	28,901	-44.1											7	28,552	-47.0								18	28,916	-40.8		88	35.9																				
10---	31																							18	31,700	-35.5																							
5---	31																																																

JACKSONVILLE, FLA. (1019 MB.)										KING SALMON, ALASKA (1008 MB.)										KOTZEBUE, ALASKA (1010 MB.)										LAKE CHARLES, LA. (1015 MB.)										LANDER, WYO. (831 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																				
					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed																			
SURFACE	31	8	24.6	97	209	2.9	31	15	10.0	87	137	2.7	29	5	12.6	86	299	1.7	31	5	25.3	90	115	1.5	31	1,696	12.3	70	230	3.3																			
1,000---	31	175	24.5	97	205	5.6	31	82	9.8	86	138	3.4	29	87	13.2	78	285	1.9	31	141	26.0	86	190	3.4	31	110																							
950---	31	6.8	22.6	82	196	7.5	31	509	8.4	80	135	5.4	29	515	11.7	70	240	2.7	31	591	23.7	82	215	12.6	31	550																							
900---	31	1,096	20.1	76	198	6.8	31	953	5.9	81	137	6.6	29	969	8.9	68	216	4.2	31	1,065	21.3	74	212	12.8	31	1,016																							
850---	31	1,589	17.3	71	184	5.8	31	1,420	3.1	83	138	7.7	29	1,440	6.1	66	209	5.0	31	1,559	18.1	66	205	11.2	31	1,505																							
800---	31	1,985	14.3	66	183	5.0	31	1,985	1.9	84	132	9.1	29	1,985	2.6	67	187	6.2	31	1,985	18.8	63	198	8.3	31	1,985	13.9	59	308	9.9																			
750---	31	2,645	11.2	67	183	5.0	31	2,427	-2.0	82	153	9.7	29	2,447	-4.4	68	174	6.8	31	2,614	12.2	57	193	5.2	31	2,552	11.2	56	288	1.9																			
700---	31	3,223	8.2	62	181	6.0	31	2,973	-4.9	78	147	9.1	29	3,003	-3.4	61	177	5.4	31	3,197	8.8	54	189	3.6	31	3,130	8.0	53	278	6.8																			
650---	31	3,825	5.0	54	181	6.4	31	3,550	-8.0	69	150	10.8	29	3,575	-6.7	58	175	6.4	31	3,804	5.4	50	144	.9	31	3,727	4.2	49	287	14.9																			
600---	31	4,482	1.2	54	185	6.4	31	4,172	-11.5	59	153	10.1	29	4,207	-10.5	56	175	6.9	31	4,458	1.4	49	159	.7	31	4,383	-.6	48	285	20.9																			
550---	31	5,169	-2.5	48	190	5.4	31	4,831	-15.4	53	161	10.8																																					

RAWINSONDE DATA

Average monthly values

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MIDLAND, TEX. (915 MB.)										MONTGOMERY, ALA. (1011 MB.)										NANTUCKET, MASS. (1014 MB.)										NASHVILLE, TENN. (996 MB.)										N. Y. INT. AP. IDLEWILD (1015 MB.)									
Standard pressure surface mb.		Number of observations		Dynamic height		Temperature		Relative humidity		Wind Direction		Speed		Number of observations		Dynamic height		Temperature		Relative humidity		Wind Direction		Speed		Number of observations		Dynamic height		Temperature		Relative humidity		Wind Direction		Speed		Number of observations		Dynamic height		Temperature		Relative humidity		Wind Direction		Speed	
SURFACE	31	871	22.9	70	168	5.4	31	61	22.8	92	158	1.1	31	14	18.7	92	230	4.0	31	177	22.5	96	199	3.6	31	5	21.7	85	297	3.3	31	134	21.0	80	289	4.6	31	134	21.0	80	289	4.6	31	134	21.0	80	289	4.6	
1,000--	31	90					31	160	23.1	89	206	2.5	31	135	19.2	85	238	6.6	31	142						31	577	19.2	73	283	9.5	31	577	19.2	73	283	9.5	31	577	19.2	73	283	9.5	31	577	19.2	73	283	9.5
950--	31	541					31	609	22.8	80	250	7.7	31	576	19.2	76	256	10.4	31	590	22.6	79	239	12.2	31	577	19.2	73	283	9.5	31	577	19.2	73	283	9.5	31	577	19.2	73	283	9.5	31	577	19.2	73	283	9.5	
900--	31	1,017	23.2	66	177	12.4	31	1,080	20.1	78	242	7.7	31	1,043	16.9	73	261	13.6	31	1,063	20.3	77	252	14.5	31	1,041	17.1	70	275	12.4	31	1,041	17.1	70	275	12.4	31	1,041	17.1	70	275	12.4	31	1,041	17.1	70	275	12.4	
850--	31	1,516	22.6	54	195	19.0	31	1,573	17.0	78	229	7.5	31	1,529	14.4	68	263	17.4	31	1,555	17.0	76	253	14.5	31	1,528	14.4	70	272	16.7	31	1,528	14.4	70	272	16.7	31	1,528	14.4	70	272	16.7	31	1,528	14.4	70	272	16.7	
800--	31	2,043	20.6	43	210	11.6	31	2,089	14.0	74	222	7.5	31	2,041	12.1	62	266	20.5	31	2,070	13.8	72	248	13.9	31	2,039	12.1	60	271	18.8	31	2,039	12.1	60	271	18.8	31	2,039	12.1	60	271	18.8	31	2,039	12.1	60	271	18.8	
750--	31	2,595	17.5	38	202	5.4	31	2,629	11.1	70	226	7.7	31	2,578	9.2	60	264	23.3	31	2,608	11.0	65	246	13.7	31	2,576	9.4	58	270	24.0	31	2,576	9.4	58	270	24.0	31	2,576	9.4	58	270	24.0	31	2,576	9.4	58	270	24.0	
700--	31	3,183	13.3	40	159	1.5	31	3,208	-8.0	64	220	7.1	31	3,149	6.1	57	267	25.2	31	3,186	7.7	60	251	14.5	31	3,146	6.1	56	271	23.8	31	3,146	6.1	56	271	23.8	31	3,146	6.1	56	271	23.8	31	3,146	6.1	56	271	23.8	
650--	31	3,797	8.5	42	53	7.7	31	3,811	4.4	62	223	6.2	31	3,752	2.8	55	266	28.7	31	3,790	4.4	54	250	13.6	31	3,748	2.8	53	273	26.2	31	3,748	2.8	53	273	26.2	31	3,748	2.8	53	273	26.2	31	3,748	2.8	53	273	26.2	
600--	31	4,458	3.4	46	51	2.1	31	4,464	-7.1	61	224	5.4	31	4,398	-7.7	48	268	32.0	31	4,442	-7.0	46	251	13.0	31	4,394	-7.8	54	270	26.8	31	4,394	-7.8	54	270	26.8	31	4,394	-7.8	54	270	26.8	31	4,394	-7.8	54	270	26.8	
550--	31	5,150	-1.7	46	59	1.7	31	5,155	-3.2	56	226	2.9	31	5,083	-4.6	46	269	31.0	31	5,131	-3.3	41	250	13.2	31	5,078	-4.7	52	270	29.5	31	5,078	-4.7	52	270	29.5	31	5,078	-4.7	52	270	29.5	31	5,078	-4.7	52	270	29.5	
500--	31	5,910	-6.5	40	80	.5	31	5,909	-7.4	52	223	4.2	31	5,834	-8.9	45	271	31.6	31	5,885	-12.1	35	253	10.6	31	5,829	-8.8	47	272	30.0	31	5,829	-8.8	47	272	30.0	31	5,829	-8.8	47	272	30.0	31	5,829	-8.8	47	272	30.0	
450--	31	6,720	-11.4	31	320	1.1	31	6,720	-11.9	45	239	3.6	31	6,636	-13.7	42	273	32.6	31	6,693	-12.1	35	260	12.2	31	6,632	-13.7	45	270	32.2	31	6,632	-13.7	45	270	32.2	31	6,632	-13.7	45	270	32.2	31	6,632	-13.7	45	270	32.2	
400--	31	7,621	-17.1	30	306	4.8	31	7,619	-17.4	41	246	4.0	31	7,529	-19.9	46	270	34.3	31	7,592	-17.7	31	270	13.7	31	7,524	-19.4	44	268	34.0	31	7,524	-19.4	44	268	34.0	31	7,524	-19.4	44	268	34.0	31	7,524	-19.4	44	268	34.0	
350--	31	8,609	-24.1	1	319	5.9	31	8,606	-24.4	38	257	4.4	31	8,508	-26.5	41	273	33.6	31	8,578	-24.4	31	272	13.2	31	8,504	-26.2	43	272	40.0	31	8,504	-26.2	43	272	40.0	31	8,504	-26.2	43	272	40.0	31	8,504	-26.2	43	272	40.0	
300--	31	9,716	-32.1		327	9.7	31	9,712	-32.6	34	295	5.2	31	9,605	-34.3	37	269	30.1	31	9,683	-32.7	27	273	15.7	31	9,602	-33.8	274	39.8	31	9,602	-33.8	274	39.8	31	9,602	-33.8	274	39.8	31	9,602	-33.8	274	39.8	31	9,602	-33.8	274	39.8
250--	31	10,977	-41.8		331	11.6	31	10,971	-42.2		317	4.8	31	10,855	-44.0		270	35.1	31	10,942	-42.3		284	14.7	31	10,855	-43.7	275	43.1	31	10,855	-43.7	275	43.1	31	10,855	-43.7	275	43.1	31	10,855	-43.7	275	43.1	31	10,855	-43.7	275	43.1
200--	31	12,455	-52.3		319	10.6	31	12,446	-52.7		11	6.2	31	12,317	-54.8		286	39.8	31	12,416	-53.3		303	18.4	31	12,319	-54.5	282	44.1	31	12,319	-54.5	282	44.1	31	12,319	-54.5	282	44.1	31	12,319	-54.5	282	44.1	31	12,319	-54.5	282	44.1
175--	31	13,308	-58.0		331	9.9	31	13,298	-58.4		13	7.3	31	13,162	-59.8		295	41.5	31	13,264	-59.3		311	18.0	31	13,167	-60.0	283	41.3	31	13,167	-60.0	283	41.3	31	13,167	-60.0	283	41.3	31	13,167	-60.0	283	41.3	31	13,167	-60.0	283	41.3
150--	31	14,266	-64.1		341	6.8	31	14,255	-63.7		15	10.2	31	14,117	-63.1		31	14,218	-63.9		31	14,218	-63.9		307	14.7	31	14,120	-63.9	283	39.4	31	14,120	-63.9	283	39.4	31	14,120	-63.9	283	39.4	31	14,120	-63.9	283	39.4			
125--	31	15,368	-69.2		314	5.6	31	15,361	-68.8		31	10.6	31	15,236	-63.7		31	15,255	-67.8		31	15,255	-67.8		307	9.3	31	15,235	-64.8	280	34.1	31	15,235	-64.8	280	34.1	31	15,235	-64.8	280	34.1	31	15,235	-64.8	280	34.1			
100--	31	16,689	-74.8		311	5.6	31	16,698	-70.8		5	4.7	31	16,589	-69.9		31	16,681	-68.8		31	16,681	-68.8		29	16.9	31	16,599	-72.2	278	27.9	31	16,599	-72.2	278	27.9	31	16,599	-72.2	278	27.9	31	16,599	-72.2	278	27.9			
80--	31	18,021	-67.3		84	8.3	28	18,044	-65.4		78	11.2	31	17,991	-59.7		30	18,012	-64.3		30	18,012	-64.3		42	4.6	29	17,977	-60.9	288	18.2	31	17,977	-60.9	288	18.2	31	17,977	-60.9	288	18.2	31	17,977	-60.9	288	18.2			
60--	31	19,786	-60.3		91	19.6	28	19,822	-58.6		85	17.0	31	19,808	-55.3		30	19,799	-58.2		30	19,799	-58.2		84	11.0	29	19,793	-55.0	42	2.1	31	19,793	-55.0	42	2.1	31	19,793	-55.0	42	2.1	31	19,793	-55.0	42	2.1			
50--	31	20,933	-56.8		89	23.1	28	20,980	-54.8		92	22.7	31	21,976	-53.3		30	20,956	-55.3		30	20,956	-55.3		91	15.7	24	20,971	-52.3	76	3.8	31	20,971	-52.3	76	3.8	31	20,971	-52.3	76	3.8	31	20,971	-52.3	76	3.8			
40--	31	22,360	-53.0		89	25.4	28	22,418	-51.5		93	26.6	31	22,419	-51.5		29	22,391	-52.4		29	22,391	-52.4		92	17.8	24	22,424	-49.9	95	11.4	31	22,424	-49.9	95	11.4	31	22,424	-49.9	95	11.4								

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ST. CLOUD, MINN. (975 MB.)										ST. PAUL IS., ALASKA (1009 MB.)										SALEM, OREG. (1008 MB.)										SALT LAKE, CITY, UTAH (870 MB.)										SAN ANTONIO, TEX (987 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height	Temperature	Relative humidity			Wind			Dynamic height	Temperature	Relative humidity			Wind			Dynamic height	Temperature	Relative humidity			Wind			Dynamic height	Temperature	Relative humidity			Wind																	
					Direction	Speed	Number of observations	Direction	Speed	Number of observations			Direction	Speed	Number of observations	Direction	Speed	Number of observations			Direction	Speed	Number of observations	Direction	Speed	Number of observations			Direction	Speed	Number of observations	Direction	Speed	Number of observations	Direction	Speed	Number of observations												
SURFACE	31	316	14.7	91	265	0.7	31	10	6.9	95	2	4.8	31	61	13.8	89	282	0.7	31	1,288	16.4	49	149	5.4	31	243	23.8	90	165	5.0																			
1,000----	31	100					31	83	6.7	94	16	5.2	31	129	15.5	84	350	2.1	31	82				31	129																								
950----	31	541	17.5	77	274	3.3	31	501	5.3	91	45	6.2	31	566	16.5	69	24	6.0	31	524				31	585	22.3	86	179	15.5																				
900----	31	1,001	15.6	67	288	7.5	31	945	4.3	87	55	6.0	31	1,027	16.7	57	17	5.4	31	997				31	1,049	21.0	75	189	22.9																				
850----	31	1,484	12.7	62	285	8.7	31	1,409	3.1	79	62	6.4	31	1,513	15.4	45	1	6.6	31	1,492	21.5	28	156	6.6	31	1,543	19.3	64	185	19.4																			
800----	31	1,991	9.6	58	282	8.9	31	1,899	1.3	73	67	6.2	31	2,025	13.1	40	357	6.2	31	2,014	19.4	25	168	5.4	31	2,064	16.9	55	180	14.9																			
750----	31	2,522	6.3	57	284	12.2	31	2,418	1.1	67	75	4.8	31	2,563	10.0	36	338	5.2	31	2,561	15.9	27	226	4.8	31	2,608	14.3	45	177	13.3																			
700----	31	3,087	3.4	51	283	14.3	31	2,965	-4.0	61	81	4.8	31	3,135	6.9	32	326	6.0	31	3,145	10.5	31	265	7.5	31	3,192	11.3	40	163	8.7																			
650----	31	3,682	2.47	281	16.9	31	3,545	7.4	56	44	6.0	31	3,744	3.2	30	326	6.0	31	3,751	5.9	37	264	12.2	31	3,803	7.6	36	139	4.6																				
600----	31	4,324	-3.3	42	281	20.0	31	4,166	-10.9	51	50	6.0	31	4,385	-1.8	27	324	6.0	31	4,407	5.5	42	254	17.0	31	4,454	3.3	33	100	4.8																			
550----	31	5,001	-7.3	39	279	22.7	31	4,825	-15.0	49	55	7.1	31	5,066	-5.1		320	7.3	31	5,089	-5.1	49	248	21.3	31	5,155	-1.4	31	83	5.6																			
500----	31	5,744	-12.2	36	277	27.0	31	5,544	-19.6	47	33	5.2	31	5,816	-10.1		321	8.1	31	5,839	-10.8	47	255	23.3	31	5,914	-6.4	30	79	5.4																			
450----	31	6,535	-17.5		276	29.5	31	6,311	-24.9	44	340	2.9	31	6,610	-16.2		321	8.3	31	6,639	-16.4	35	256	25.4	31	6,726	-11.3		44	3.6																			
400----	31	7,414	-23.7		275	31.8	31	7,166	-31.0	44	352	8.1	31	7,495	-23.0		318	8.7	31	7,518	-22.2		260	27.9	31	7,625	-17.2		49	4.2																			
350----	31	8,378	-30.3		276	37.3	31	8,100	-37.6		11	6.8	31	8,459	-30.5		314	10.6	31	8,486	-29.2		260	33.0	31	8,613	-24.2		31	5.8																			
300----	31	9,458	-38.1		275	43.5	31	9,148	-44.5		20	5.4	31	9,535	-39.2		317	11.6	31	9,571	-36.8		239	40.8	31	9,719	-32.0		32	6.4																			
250----	31	10,890	-46.5		273	53.8	31	10,355	-48.7		312	6.9	31	10,789	-48.2		307	13.9	31	10,809	-45.8		238	49.7	31	10,982	-41.3		22	6.8																			
200----	31	12,148	-53.4		268	58.6	31	11,828	-46.8		292	13.4	31	12,206	-54.4		292	17.4	31	12,270	-53.0		280	53.3	31	12,463	-51.9		44	7.5																			
175----	31	13,005	-55.0		269	55.9	31	12,714	-46.3		282	11.8	31	13,059	-55.8		287	20.4	31	13,126	-55.4		260	53.8	31	13,318	-57.5		49	4.2																			
150----	31	13,989	-55.8		272	46.0	31	13,738	-46.6		268	9.9	31	14,040	-55.8		282	21.3	31	14,103	-58.4		260	45.4	31	14,279	-63.3		45	9.5																			
125----	31	15,147	-57.0		276	32.0	30	14,947	-47.5		249	6.4	29	15,193	-57.2		283	15.5	31	15,243	-61.0		263	33.4	30	15,385	-68.8		49	9.5																			
100----	31	16,558	-57.4		282	20.2	30	16,422	-47.5		233	4.0	28	16,600	-58.6		287	10.2	31	16,623	-62.7		267	15.9	30	16,781	-71.1		49	11.0																			
80----	31	17,973	-55.7		290	11.8	30	17,896	-47.6		178	4.8	26	18,000	-58.2		315	5.0	30	18,001	-61.1		300	3.4	30	18,041	-67.5		67	13.0																			
60----	29	19,820	-52.5		348	4.4	30	19,799	-47.4		120	4.8	25	19,825	-55.7		64	5.0	30	19,809	-56.7		80	6.2	30	19,805	-60.5		83	19.6																			
40----	28	21,004	-50.2		48	4.0	30	21,005	-47.5		118	5.4	25	20,990	-54.6		75	7.3	30	20,973	-54.3		74	8.9	30	20,950	-57.5		89	27.7																			
20----	28	22,469	-48.3		86	74	12.2	30	22,481	-47.2		86	9.9	25	22,429	-51.8		79	11.6	30	22,412	-51.6		80	12.4	28	22,374	-51.6		90	24.7																		
30----	26	24,369	-46.1		86	15.1	29	24,389	-46.2		92	13.2	22	24,310	-48.2		85	14.3	28	24,297	-48.3		85	13.3	28	24,232	-51.1		92	28.2																			
25----	25	25,582	-44.4		91	21.1	26	25,602	-45.0		92	14.1	18	25,517	-46.6		86	17.0	22	25,501	-46.2		85	17.2	25	25,422	-49.2		92	45.8																			
20----	15	27,073	-42.7		19	27.7	19	27,097	-43.4				6	27,022	-44.3				13	26,981	-44.4				16	26,891	-47.2																						

SAN DIEGO, CALIF. (998 MB.)										SAN JUAN, P. R. (1017 MB.)										SANTA MARIA, CALIF. (1005 MB.)										SANTA MONICA, CALIF. (1009 MB.)										SAULT STE. MARIE, MICH. (988 MB.)									
SURFACE	31	124	17.0	90	322	1.7	31	6	25.9	87	96	5.2	31	74	13.6	91	18	0.0	31	38	17.4	85	339	0.5	31	221	12.3	95	66	0.7																			
1,000--	31	103					31	158	25.3	84	93	13.0	31	114	13.2	91	18	-3	31	114	16.6	85	162	-1	31	115																							
950--	31	542	16.9	76	155	.1	31	605	22.7	82	87	20.0	31	551	14.0	84	15	3.4	31	554	16.6	77	118	1.9	31	549	15.3	77	255	4																			
900--	31	1,007	21.7	31	290	2.1	31	1,079	19.8	80	89	18.8	31	1,008	20.9	44	48	4.6	31	1,015	19.9	42	133	1.3	31	1,007	13.7	72	264	9																			
850--	31	1,503	21.1	22	363	5.6	31	1,571	17.1	75	91	20.0	31	1,501	19.1	38	39	3.1	31	1,508	20.1	29	274	2.9	31	1,487	11.2	74	267	12.6																			
800--	31	2,025	18.5	25	327	8.1	31	2,087	15.0	61	94	17.8	31	2,019	16.2	33	312	-7	31	2,029	17.4	30	241	6.2	31	1,991	8.2	72	268	14.7																			
750--	31	2,525	18.5	22	372	10.6	31	2,626	12.8	53	94	16.9	31	2,456	13.2	28	244	2.5	31	2,474	14.6	17	210	9.5	31	2,435	5.1	61	265	40																			
700--	31	3,158	12.0		216	11.1	31	3,208	8.9	49	95	15.1	31	3,141	10.0	24	243	4.8	31	3,155	11.0	27	222	10.0	31	3,084	3.4	49	265	19.2																			
650--	31	3,767	7.9		210	13.7	31	3,813	5.4	44	98	13.9	31	3,752	6.4		239	7.1	31	3,764	7.0		223	11.2	31	3,681	-1	45	267	20.7																			
600--	31	4,431	3.9		212	14.3	31	4,468	1.7	40	97	12.0	31	4,404	2.3		242	9.3	31	4,423	3.2		231	12.8		31	4,320	-3.5	40	268	24.2																		
550--	31	5,123	-6		222	13.6	31	5,163	-1.8	42	88	12.8	31	5,094	-2.2		243	13.2	31	5,116	-1.7		234	15.3		31	4,995	-7.5	39	264	25.8																		
500--	31	5,888	-5.8		225	14.9	31	5,917	-6.4	37	88	12.2	31	5,851	-7.5		240	16.7	31	5,874	-6.7		233	16.5		31	5,739	-12.1	35	264	27.5																		
450--	31	6,696	-11.5		224	17.4	31	6,726	-11.9	30	82	10.8	31	6,657	-13.2		244	22.1	31	6,683	-12.5		233	20.0		31	6,529	-17.5		266	30.0																		
400--	31	7,601	-18.1		234	21.1	31	7,631	-18.1	28	89	8.7	31	7,549	-19.8		238	27.3	31	7,578	-19.8		236	24.2		31	7,410	-23.7		263	35.3																		
350--	31	8,508	-23.8		244	24.8	31	8,539	-23.5	24	84	7.5	31	8,436	-27.1		244	31.0	31	8,467	-27.1		236	28.8		31	8,327	-32.8		262	40.0																		
300--	31	9,686	-33.4		243	28.3	31	9,708	-34.2		105	3.4	31	9,620	-35.1		243	33.8		31	9,652	-34.8		241	33.2		31	9,448	-38.9		265	47.2																	
250--	31	10,943	-42.5		244	34.3	31	10,958	-44.5		180	2.3	31	10,869	-43.6		249	37.8	31	10,901	-43.6		245	40.2		31	10,676	-47.3		265	57.3																		
200--	31	12,419	-52.6		247	33.6	31	12,414	-56.4		224	4.2	31	12,341	-52.3		252	38.2	31	12,371	-52.9		248	41.1		29	12,134	-53.2		266	64.1																		
175--	31	13,272	-58.0		248	31.8	31	13,252	-62.0		231	4.4	31	13,195	-57.0		253	34.9	31	13,222	-58.0		246	37.6		29	12,991	-54.9		270	60.0																		
150--	31	14,330	-63.9		243	25.6	30	14,194	-67.2		172	1.5	31	14,160	-61.8		255	29.5	31	14,182	-63.1		246	31.4		28	13,978	-55.3		274	47.9																		
125--	31	15,230	-69.0		244	20.5	27	15,291	-68.7		74	5.2	31	15,278	-66.1		253	17.8	30	15,293	-67.4		246	22.1		28	15,139	-56.4		271	37.3																		
100--	30	16,599	-70.7		267	7.3	26	16,616	-71.9		79	12.0	29	16,619	-72.0		271	5.4	29	16,629	-69.1		264	9.9		28	16,533	-53.4		270	25.0																		
80--	30	17,992	-67.4		86	5.8	24	17,938	-68.6		75	23.7	27	17,970	-65.5		72	6.8	29	17,971	-65.7		65	3.4		27	17,969	-55.5		273	16.1																		
60--	30	19,758	-60.1		91	16.7	24	19,687	-62.5		84	33.6	27	19,757	-58.8		91	17.0	29	19,748	-59.3		88	14.3		27	19,813	-52.5		322	3.1																		
50--	29	20,903	-57.3		90	21.5	22	20,822	-59.3		86	39.0	27	20,910	-56.1		86	18.4	28	20,899	-56.6		90	18.2		23	21,000	-50.6		59	6.0																		
40--	29	22,324	-54.0		91	24.0	20	22,235	-55.9		84	45.6	27	22,337	-53.8		86	21.3	28	22,324	-53.9		89	21.9		21	22,460	-48.7		82	8.7																		
30--	28	24,184	-50.4		86	26.8	17	24,095	-50.3		86	49.5	25	24,200	-50.5		88	27.0	27	24,190	-49.8		86	25.2		21	24,362	-46.2		83	11.2																		
25--	28	25,378	-48.6		88	28.9	16	25,294	-48.0		89	51.6	18	25,391	-48.8		88	26.6		25	25,388	-48.1		88	27.5		20	25,579	-44.4		86	14.3																	
20--	25	26,484	-46.5		89	35.4	9	26,766	-44.9		84	36.3					88	26.6		21	26,486	-47.5		87	31.8		18	27,078	-42.5		93	18.2																	
15--	18	28,775	-43.0														18	28,796																															
10--	7	31,515	-38.4														10	31,556																															

SEATTLE, WASH. (1001 MB.)										SHREVEPORT, LA. (1006 MB.)										SPOKANE, WASH. (931 MB.)										TAMPA, FLA. (1018 MB.)										TATOOSH IS., WASH. (1012 MB.)									
SURFACE	31	125	15.1	85	171	2.5	31	76	23.3	91	180	5.2	31	722	16.6	60	98	1.7	30	8	24.8	90	101	5.2	31	31	12.7	95	195	9.1																			
1000----	31	129	17.0	88	177	2.9	31	129	23.4	89	191	7.5	31	101	16.6	60	98	1.7	30	108	25.0	87	120	7.5	31	29	13.5	88	205	8.8																			
950-----	31	568	17.0	58	88	2.5	31	580	23.3	74	227	19.2	31	546	16.6	60	98	1.7	30	612	22.7	82	148	9.9	31	567	16.6	68	268	3.0																			
900-----	31	1,028	16.0	63	16	4.6	31	1,051	21.1	68	228	16.9	31	1,009	18.7	48	71	3.8	30	1,085	20.0	76	153	9.7	31	1,026	17.3	54	326	3.6																			
850-----	31	1,513	14.6	55	358	6.8	31	1,545	18.2	68	228	13.0	31	1,499	17.1	41	24	3.8	29	1,577	17.2	72	155	8.1	31	1,512	14.6	53	326	2.9																			
800-----	31	2,023	12.0	48	346	5.6	31	2,063	15.1	64	223	9.9	31	2,013	13.3	46	346	5.2	29	2,094	14.4	67	153	6.9	31	2,022	11.6	41	319	3.8																			
750-----	31	2,561	9.1	45	339	5.8	31	2,605	11.9	54	227	8.9	31	2,552	9.2	50	336	6.0	29	2,634	11.5	60	151	6.0	31	2,554	8.8	36	318	6.4																			
700-----	31	3,130	5.9	35	319	5.4	31	3,182	8.7	46	245	6.6	31	3,121	4.9	55	323	6.4	29	3,212	8.3	56	157	5.8	31	3,128	5.8	32	319	8.3																			
650-----	31	3,730	2.5	32	320	7.3	31	3,790	5.1	41	244	4.0	31	3,716	9	53	307	7.5	29	3,817	4.9	53	162	5.8	31	3,721	2.4	31	317	9.9																			
600-----	31	4,377	-1.5	31	318	9.5	31	4,441	-1.0	39	252	2.9	31	4,361	-2.9	45	312	10.8	29	4,471	1.2	48	173	6.8	31	4,373	-1.5	30	315	12.2																			
550-----	31	5,057	-5.9	30	320	10.8	31	5,131	-3.1	35	266	2.5	31	5,038	-7.0	43	312	12.0	28	5,159	-2.7	40	172	6.0	31	5,049	-6.0	31	313	12.6																			
500-----	31	5,805	-11.0	30	313	13.4	31	5,885	-7.4	29	278	4.2	31	5,783	-12.0	40	305	14.7	28	5,917	-7.2	40	173	5.6	31	5,801	-11.1	31	312	14.1																			
450-----	31	6,598	-17.0	30	314	15.7	31	6,693	-12.4		295	4.4	31	6,573	-17.8	33	309	17.2	28	6,724	-12.3	39	169	6.2	31	6,588	-17.0		310	14.5																			
400-----	31	7,481	-23.8	31	313	18.9	31	7,589	-18.0		302	3.8	31	7,452	-24.5	33	308	19.6	28	7,622	-18.6	33	162	5.4	31	7,476	-23.8		304	16.5																			
350-----	31	8,369	-30.4	31	317	17.0	31	8,481	-32.1	31	312	4.6	31	8,410	-32.0	33	302	21.1	28	8,631	-25.8	33	150	4.4	31	8,369	-30.4		308	18.9																			
300-----	31	9,514	-40.1	31	316	18.4	31	9,677	-32.1	31	303	3.1	31	9,480	-40.7		303	22.7	28	9,703	-34.1	31	117	5.2	31	9,511	-39.9		312	19.8																			
250-----	31	10,734	-49.5	31	318	20.5	31	10,936	-42.1		292	6.6	31	10,697	-49.5		305	25.4	28	10,954	-41.0		88	8.1	31	10,731	-49.4		316	22.1																			
200-----	31	12,171	-56.0	30	307	23.3	31	12,410	-53.1		326	6.6	31	12,138	-54.5		302	28.5	28	12,415	-55.3		74	9.9	31	12,166	-57.0		305	24.6																			
175-----	30	13,019	-55.9	30	301	22.7	31	13,260	-58.6		338	7.7	30	12,991	-54.2		291	23.3	28	13,256	-60.8		75	11.4	31	13,012	-57.0		303	22.9																			
150-----	30	14,001	-55.5		291	21.1	31	14,216	-64.3		358	5.4	28	13,981	-54.3		288	22.3	27	14,203	-65.6		69	11.2	31	13,991	-55.7		300	20.2																			
125-----	30	15,162	-56.0		292	18.6	31	15,317	-69.4		8	5.8	27	15,154	-55.1		288	20.9	27	15,302	-68.9		62	14.1	31	15,152	-56.2		295	17.7																			
100-----	29	16,579	-57.0		296	13.0		16,639	-71.4		31	6.8	27	16,575	-56.3		288	14.3	27	16,633	-69.4		72	15.9	31	16,568	-57.1		301	13.0																			
80-----	29	17,992	-56.5		311	6.6		17,973	-66.4		79	9.1	26	17,990	-55.7		308	7.3	27	17,973	-67.1		75	15.3	30	17,981	-56.2		316	6.0																			
60-----	29	19,829	-53.7		53	4.6		19,747	-59.5		84	18.0	26	19,833	-53.7		58	4.2	27	19,733	-60.6		89	27.5	30	19,816	-54.1		23	2.5																			
50-----	28	21,004	-52.2		64	7.1		20,898	-56.3		91	21.9	26	21,012	-51.3		64	7.9	27	20,879	-56.9		88	32.4	20	20,989	-52.6		75	5.4																			
40-----	28	22,455	-50.0		79	10.6		22,326	-53.0		90	24.6	26	22,468	-49.2		80	11.0	27	22,303	-53.5		90	35.1	29	22,436	-50.4		86	7.1																			
30-----	24	24,242	-46.7		85	15.6		24,200	-48.5		88	29.1	22	24,362	-46.6		83	11.6	24	24,175	-47.5		87	36.6	28	24,242	-46.7		87	5.5																			
25-----	19	25,567	-45.1		80	12.3		25,500	-47.8		88	27.8	22	25,584	-44.8				20	25,475	-47.7		88	35.5	27	25,537	-45.4		82	9.7																			
20-----	6	27,069	-43.1		25	26.8		26,884	-44.8		91	35.5							8	26,841	-45.6				25	27,034	-43.1		96	10.8																			
15-----					24	28,829		-41.3			87	36.3													19	28,977	-40.2		91	12.8																			
10-----					16	31,603		-36.4			85	43.1													6	31,789	-35.5																						

See reference note at end of table

Average monthly values

JULY 1958

YUCCA FLAT, NEV. (879 MB.)							
SURFACE	31	1, 196	13.7	27	205	0.5	
1, 000--	31	86					
950--	31	528					
900--	31	999					
850--	31	1, 490	23.2	20	219	5.0	
800--	31	2, 014	20.0	20	214	12.6	
750--	31	2, 560	16.1	21	213	11.0	
700--	31	3, 145	11.4	22	208	39.4	
650--	31	3, 755	6.7	25	198	10.1	
600--	31	4, 411	2.0	26	199	9.7	
550--	31	5, 098	- 3.0		213	14.3	
500--	31	5, 855	- 8.0		231	17.6	
450--	31	6, 661	-13.5		241	23.3	
400--	31	7, 551	-20.1		244	28.7	
350--	31	8, 527	-27.4		247	33.8	
300--	31	9, 520	-35.4		245	39.4	
250--	31	10, 866	-44.3		248	43.9	
200--	31	12, 335	-52.4		249	45.6	
175--	30	13, 191	-56.5		250	44.1	
150--	29	14, 159	-61.1		249	36.7	
125--	29	15, 280	-65.2		255	27.9	
100--	29	16, 633	-66.4		268	10.2	
75--	24	17, 952	-35.3		54	2.7	
60--	21	19, 778	-58.2		82	9.7	
50--	20	20, 946	-54.8		86	14.9	
40--	18	22, 383	-51.8		81	18.6	
30--	14	24, 262	-48.3		88	19.0	
25--	8	25, 449	-47.0				

computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element

These average values for standard pressure, surface were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun

JULY 1958

Sun's zenith distance									
Date	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
Air mass									
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
July									
3-----					Cloudy				
2-----		0.87	1.00	1.14	1.36				
3-----			.99	1.18	1.39				
4-5-----					Cloudy				
6-----			1.00	1.15	1.36				
7-----	0.89	.95	1.07	1.19	1.36	1.21	1.08	0.95	0.87
8-----	.82	.88	1.00	1.13	1.35	1.11			
9-----	.82	.89	1.03	1.17	1.35	1.12	.95		
10-----	.81	.89	1.01	1.15	1.33		.96		
11-----	.81	.89	1.03	1.18	1.35				
12-----	H .68	H .77	H .91	H 1.08	1.32				
13-----	H .78	H .87	H .98	1.15					
14-18----					Cloudy				
19-----						1.02	.91	.83	
20-----	.86	.91	1.03	1.16	1.32				
21-----					Cloudy				
22-----	.82	.91	1.02	1.12	1.31	1.14	.99	.89	.80
23-----	.82	.92	1.02	1.14	1.27				
24-27----					Cloudy				
28-----				H 1.04					
Aver-ages	0.81	0.89	1.01	1.14	1.34	1.15	1.01	0.92	0.83
TUCSON, ARIZ.									
Air mass									
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
July									
3-----	0.72	0.81	0.92	1.08					
4-----	.72	.83	.93	1.11	1.30				
5-----					1.33				
6-----	.80	.90	1.02	1.18	1.37	1.12	0.99	0.85	0.77
7-----	.82	.92	1.03	1.19	1.40	1.16	1.01	.90	.81
8-----	.82	.91	1.01	1.16	1.40	1.19	.99	.87	.77
9-----	.81	.92	1.03	1.15	1.34	1.09	.94	.79	.69
10-----	.69	.81	.93	1.08	1.28	.98	.77	.64	.54
11-----	.57	.69	.84	1.04	1.29	1.09	.91	.77	.68
12-----	.60	.72	.81	1.03	1.29	1.08	.92	.77	.67
13-----	.62	.77	.90	1.08					
14-----	.92	1.06	1.12	1.27	1.42				
15-----	.92	1.01	1.09	1.25	1.41	1.23	1.09	.99	.86
16-----	.87	.97	1.10	1.23	1.38	1.17	1.02	.90	.80
17-----	.79	.89	1.02	1.18	1.37				
18-----	.79	.90	1.02	1.18	1.35				
Aver-ages	0.76	0.87	0.98	1.15	1.35	1.12	0.96	0.83	0.73
OMAHA, NEBR.									
Air mass									
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
July									
7-----						M 1.09	M 0.89	M 0.76	
12-----	I 0.58	I 0.69	I 0.82			1.26			
15-----						H 1.03	H .88		
16-----									
25-----			.89	1.06					
28-----	S .69	S .77	S .91	S 1.05					
Aver-ages	0.64	0.73	0.87	1.06	1.26	1.06	0.89	0.76	
GUAM, M. I.									
Air mass									
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
July									
22-----					S 1.30				
30-----			M 0.87	M 1.02					

Sun's zenith distance									
Date	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
LINCOLN, NEBR.									
Air mass									
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
July									
7-----		0.67	0.78		1.12	0.91			
8-----	0.58			0.94			0.72	0.59	
12-----	.63	.73	.83			.94	.81	.72	0.64
15-----					1.12				
16-----						.96	.79	.68	.61
25-----	.61	.71	.82	.96		.92			
28-----	.63	.72	.83	.97	1.16	.94	.78	.67	.58
30-----					1.11				
Aver-ages	0.61	0.71	0.82	0.96	1.13	0.93	0.78	0.67	0.61
BLUE HILL, MASS.									
Air mass									
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
July									
10-----	0.61	0.71	0.86	1.07					
17-----	.59	.75			1.40	1.19	1.03	0.86	0.62
Aver-ages	0.60	0.73	0.86	1.07	1.40	1.19	1.03	0.86	0.62
MAUNA LOA OBS., HAWAII									
Air mass									
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
July									
1-----						1.45			
2-----	1.23	1.31	1.39	1.50					
3-----	1.19	1.27	1.36	1.47					
6-----		1.26	1.36						
7-----	1.23	1.30	1.39	1.50	1.62				
8-----						1.39	1.30	1.22	1.22
9-----	1.21	1.30	1.38	1.50	1.63	1.46	1.36	1.27	1.20
10-----	1.23	1.31	1.39	1.51	1.62	1.47	1.36	1.27	1.19
11-----	1.23	1.32	1.40	1.51	1.62	1.47	1.38	1.29	1.20
14-----			1.42	1.53	1.63	1.49	1.40	1.31	1.23
15-----	1.25	1.33	1.41	1.53	1.64	1.43	1.41	1.25	1.16
21-----								† 1.22	1.14
22-----	1.21	1.28	1.38	1.48					
23-----	1.23	1.31	1.39	1.50	1.58			1.23	1.16
24-----	1.22	1.30	1.39	1.50					
25-----	1.19	1.27	1.36	1.47					
26-----	1.19	1.27	1.36	1.46	1.60	1.43	1.32	1.23	1.15
27-----	1.17	1.25	1.34	1.45	1.58	1.44	1.32	1.23	1.15
28-----	1.18	1.26	1.35	1.46	1.59	1.43	1.32	1.23	1.15
29-----	1.18	1.26	1.34	1.46					
30-----	1.16	1.25	1.33	1.44	1.58	1.43	1.31	1.22	1.13
31-----	1.15	1.24	1.33	1.45	1.60	1.42	1.33	1.25	1.17
Aver-ages	1.20	1.28	1.37	1.48	1.61	1.45	1.35	1.25	1.17
WASHINGTON, D. C. (WBEO)									
Air mass									
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
No data during July 1958.									

* Values corresponding to true solar noon
† Installed new pyreheliometer
H Haze
I Intense haze - indeterminable
M Moderate haze - indeterminable
S Slight haze - indeterminable

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station

listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

JULY 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg							Avg							Avg									
Date-----	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Langleys-----	260	124	236	222	81	233	252	201	255	252	202	189	228	147	191	209	230	275	264	197	262	282	191	243
Date-----	23	24	25	26	27	28	29	30	31	1	2	3	4	5										
Langleys-----	107	294	162	100	153	103	192	159	196	67	288	281	281	265	289	238								

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

	Avg							Avg							Avg									
Date-----	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Langleys-----	297	187	146	319	128	302	245	232	300	179	285	293	225	243	286	259	213	99	251	175	287	116	250	199
Date-----	23	24	25	26	27	28	29	30	31	1	2	3	4	5										
Langleys-----	160	262	255	140	223	172	224	206	274	126	147	160	213	217	67	172								

Note. Langley is the unit used to denote one gram calone per square centimeter.

NET RADIATION

JULY 1958

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

Date. . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	471	478	480	473	*286	*308	*390	*338	*360	*398	*371	*469	358	*322	349	433	395	*356	441	*410	**	**	**	**	**	**	361	*436	*472	473	451	403

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

** Radiometer inoperative.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's.

JULY 1958

	Albuquerque, N. Mex.	Apache, Alaska	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Pacific Area	Cape Hatteras, N.C.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	Lincoln, Nebr.	Los Angeles, Calif.	Los Angeles, Calif. (urban)					
1958																																										
July 1	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662		
July 2	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	
July 3	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 4	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 5	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 6	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 7	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 8	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 9	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 10	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 11	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 12	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 13	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 14	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 15	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 16	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 17	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 18	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 19	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 20	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 21	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 22	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 23	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 24	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 25	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 26	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 27	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 28	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 29	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 30	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
July 31	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
Aug. 1	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
Aug. 2	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561	685	226	476	726	748	500	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
Aug. 3	754	666	712	539	685	589	735	604	604	503	503	523	368	546	561</																											

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

JULY 1958

	Matanuska, Alaska	Barrow, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Portland, Me.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Seattle, Wash. (U of W.)	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Waco Island Pacific Area	Washington, D. C. (Silver Hill Obs.)	Lemont, Ill.	Manhattan, Kans.	Aklayk, MacKenzie	Dartmouth, N. S.	Edmonton, Alberta	Moosonee, Ontario	Normand, Quebec	Ottawa, Ontario	Resolute, N. W. T.	Toronto, Ontario	Winnipeg, Manitoba
July 1	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 2	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 3	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 4	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 5	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 6	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 7	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 8	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 9	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 10	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 11	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 12	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 13	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 14	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 15	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 16	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 17	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 18	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 19	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 20	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 21	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 22	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 23	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 24	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 25	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 26	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 27	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 28	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 29	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 30	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
July 31	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
Aug. 1	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
Aug. 2	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
Aug. 3	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
Aug. 4	618	410	695	450	630	679	572	675	472	607	737	627	691	573	687	560	713	657	424	462	740	726	594	372	710	438	545	703	683	372	512	382	374	618	633	458	(443)	340	481	721
Aug. 5	618	410	695	450	630	679	572	675																																

DESCRIPTION of CHARTS

CHART I..A. AVERAGE TEMPERATURE (°F.) AT SURFACE. B. DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL.-The average monthly temperature presented in Chart I-A is computed from the average daily maximum and the average daily minimum which in turn are computed from the daily maximum and minimum temperatures reported by some 225 first-order Weather Bureau stations and 700 cooperative stations. The departures from normal are presented in Chart I-B. They are based on the 30-year normals (1921-50) for the first-order Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for the cooperative stations.

CHART II. TOTAL PRECIPITATION.-

CHART III. A. DEPARTURE OF PRECIPITATION FROM NORMAL (INCHES). B. PERCENTAGE OF NORMAL PRECIPITATION.-Chart II is based on daily precipitation records at about 800 Weather Bureau and cooperative stations. In Chart III the anomaly in the month's precipitation is shown as a departure from the normal total and as a percentage of the normal total. These anomalies show the deviations from the 30-year normals (1921-50) for about 225 first-order Weather Bureau stations in Charts III A and B, supplemented in Chart III-A by the deviation from means of 25 years or more (mostly 1931-55) for about 700 cooperative stations.

CHART IV. TOTAL SNOWFALL.-

CHART V. A. PERCENTAGE OF NORMAL SNOWFALL. B. DEPTH OF SNOW ON GROUND.-Chart IV gives the total depth in inches of unmelted snowfall as reported during the month by Weather Bureau and cooperative stations. This is converted in Chart V-A into a percentage of the normal total amount computed for each Weather Bureau station having at least 10 years of record. The depth of snow on ground is that reported by both Weather Bureau and cooperative stations as of 7:00a.m. Eastern Standard Time on the last Monday of the month. This is reported only for the months December through April. The snowfall charts are presented each month November through April.

CHART VI. A. PERCENTAGE OF SKY COVER BETWEEN SUNRISE AND SUNSET. B. PERCENTAGE OF NORMAL SKY COVER BETWEEN SUNRISE AND SUNSET.-These charts are based on visual observations made hourly at Weather Bureau stations and averaged for the month. Sky cover includes, in addition to cloudiness, obscuration of the sky by fog, smoke, etc. Normal amount of sky cover is computed for stations having at least 10 years of record.

CHART VII. A. PERCENTAGE OF POSSIBLE SUNSHINE. B. PERCENTAGE OF NORMAL SUNSHINE.-Chart VII-A shows the amount of sunshine received in terms of percentage of the total hours of sunshine possible during the month. In Chart VII-B this is shown as a percentage of the normal number of hours of

sunshine received. Normals are computed for Weather Bureau stations having at least 10 years of record.

CHART VIII. AVERAGE DAILY VALUES OF SOLAR RADIATION, DIRECT AND DIFFUSE.-Plotted on the chart are the monthly means of daily total solar radiation, both direct and diffuse, in langleys (gm. cal. cm.⁻²) for all Weather Bureau stations which record this element. Supplementary data for which limits of accuracy are wider than for those data shown are drawn upon in making the analysis. The inset shows the percentages of the mean based on the period 1951-55.

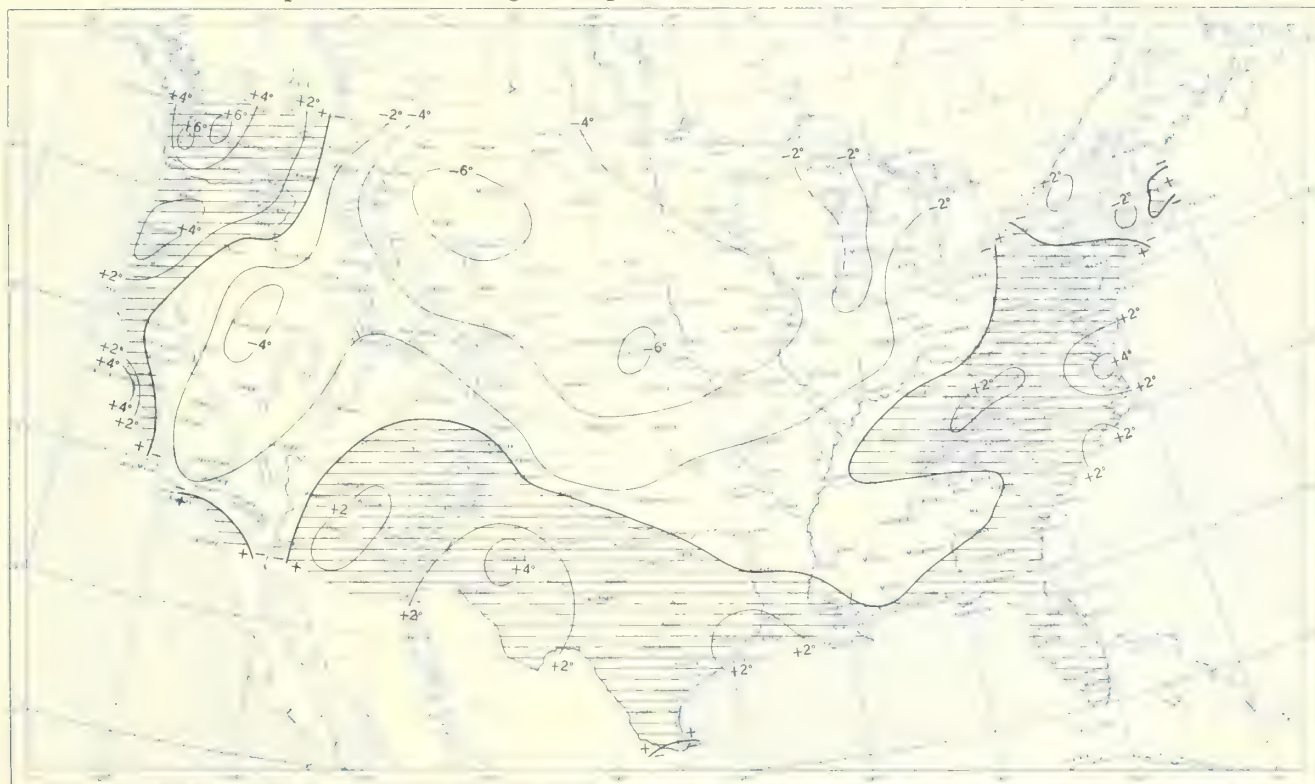
CHART IX.-TRACKS OF CENTERS OF ANTICYCLONES AT SEA LEVEL.-

CHART X. TRACKS OF CENTERS OF CYCLONES AT SEA LEVEL.-Centers which can be identified for 24 hours or more are tracked in these charts. Semi-permanent features such as the Great Basin and Pacific Highs and Colorado and Mexico Lows are not shown. The 7:00 a.m. EST positions are shown by open circles, with the intermediate positions at 6-hour intervals shown by solid dots. The date is given above the circle and the central pressure to whole millibars below. A dashed track indicates a regeneration rather than actual movement to the next position. Solid squares indicate position of stationary center for period shown beside it.

CHART XI. AVERAGE SEA LEVEL PRESSURE (mb.) AND SURFACE WINDROSES.-The average monthly sea level pressure is obtained from the averages of the 7:00 a.m. and 7:00 p.m. EST pressures reported at Weather Bureau stations. Windroses are based on the hourly wind directions (to 16 points of the compass) reported by Weather Bureau stations, each circle or arc indicating 5 percent of the time. The inset shows the departure of the average pressure from the normal average computed for each station having at least 10 years of record and for each 10° intersection in a diamond grid over the oceans from interpolated values read from the Historical Weather Maps for the 20 years of best coverage prior to 1940.

CHARTS XII-XVII. AVERAGE HEIGHT, TEMPERATURE, AND RESULTANT WINDS, 850, 700, 500, 300, 200, and 100 mb.-Height is given in geopotential meters and temperature in degrees Celsius. These are the averages of the 1200 GMT radiosonde reports. Wind speeds are given in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. Directions are shown to 360° of the compass. Winds are based on rawins at the indicated pressure surface and at 1200 GMT.

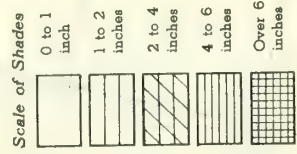
Tabulations of exact values of most of these charted elements for Weather Bureau stations are printed each month in tabular form in CLIMATOLOGICAL DATA, NATIONAL SUMMARY, and annual averages are presented in the CDNS Annual Issue each year.

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, July 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), July 1958.

A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

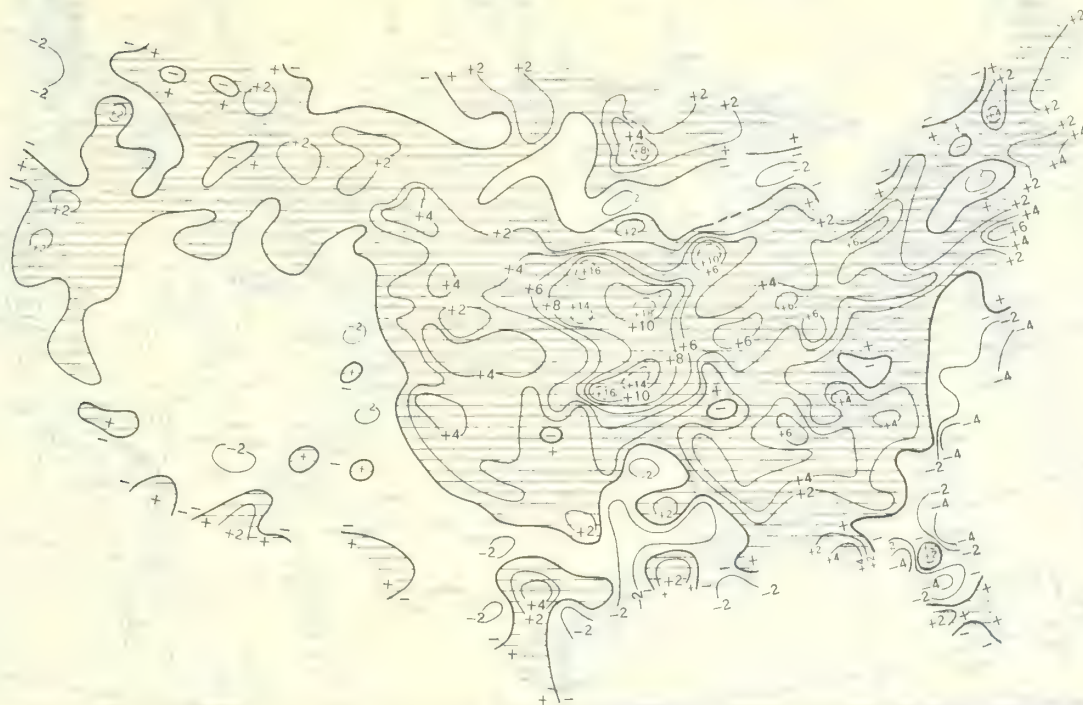
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), July 1958.

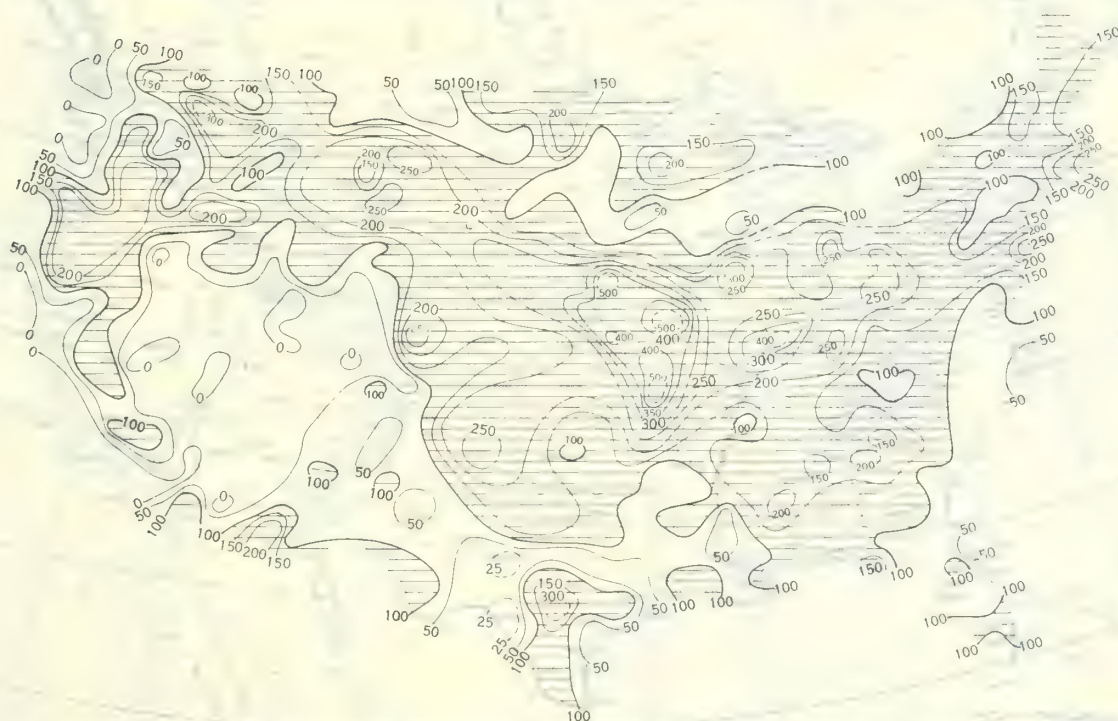


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), July 1958.

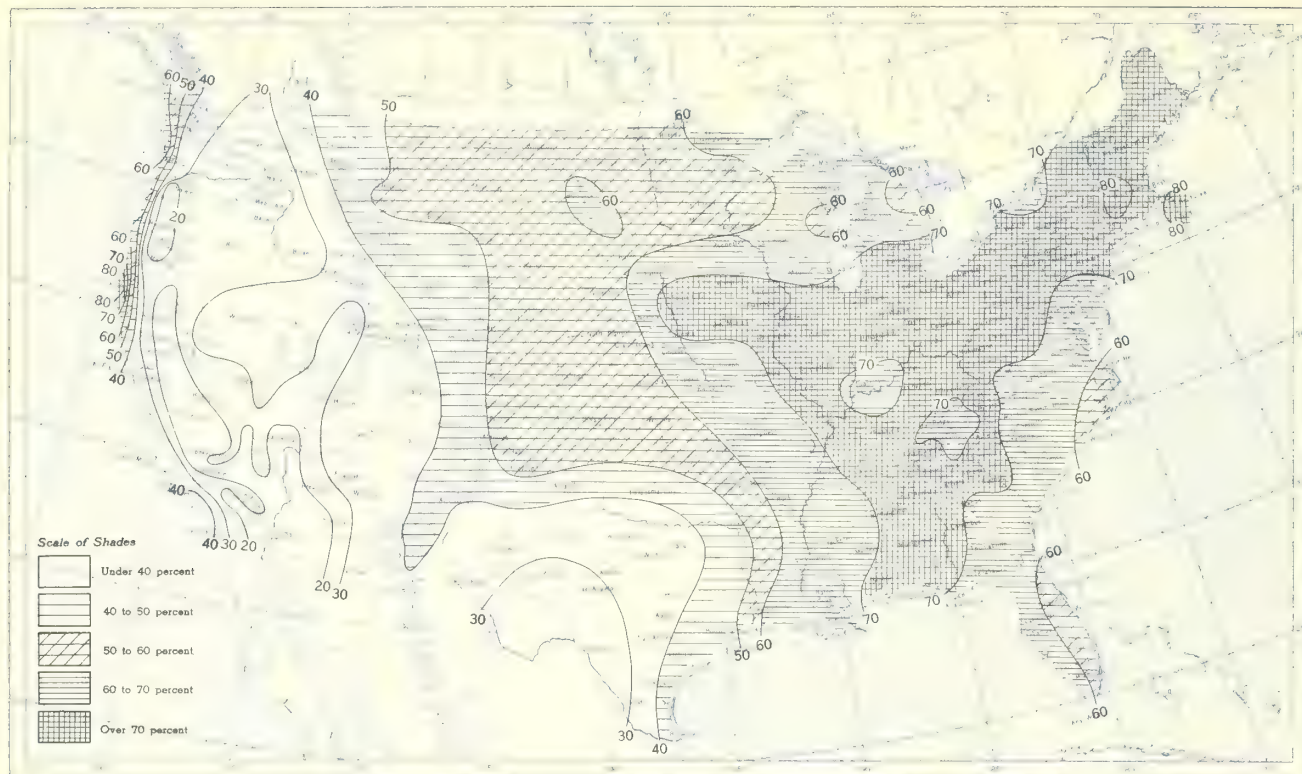


B. Percentage of Normal Precipitation, July 1958.

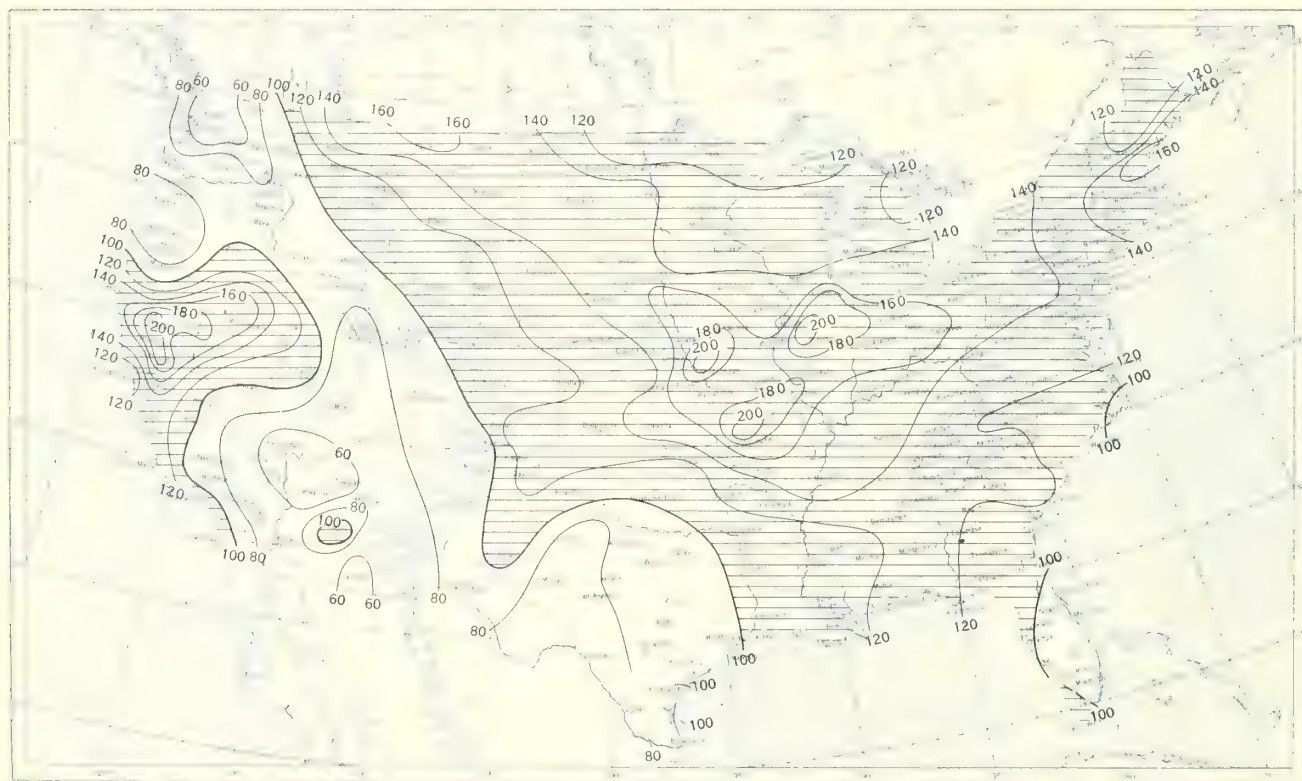


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, July 1958.

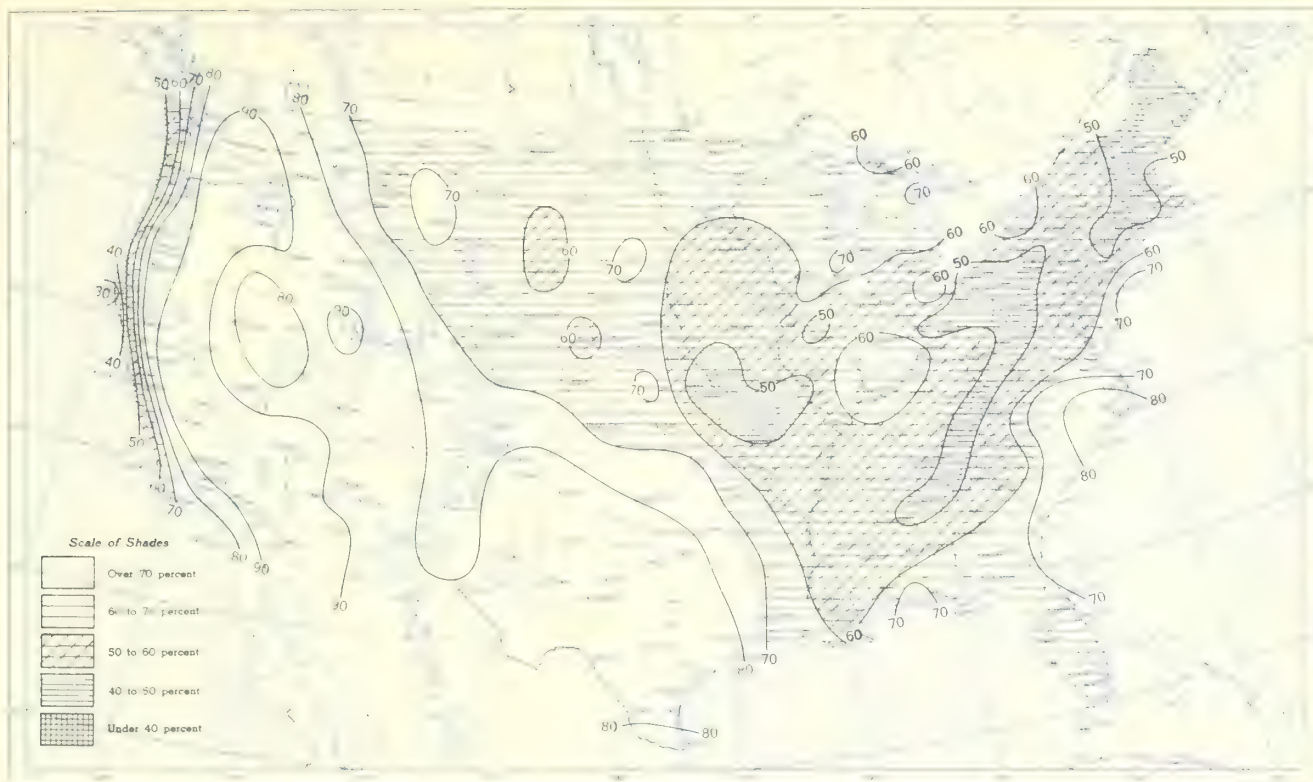


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, July 1958.



A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, July 1958.



B. Percentage of Normal Sunshine, July 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, July 1958. Inset: Percentage of Mean Daily Solar Radiation, July 1958. (Mean based on period 1951-55.)



Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley (1 langley = 1 gm. cal. cm.⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, July 1958.



Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar.
 Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, July 1958.

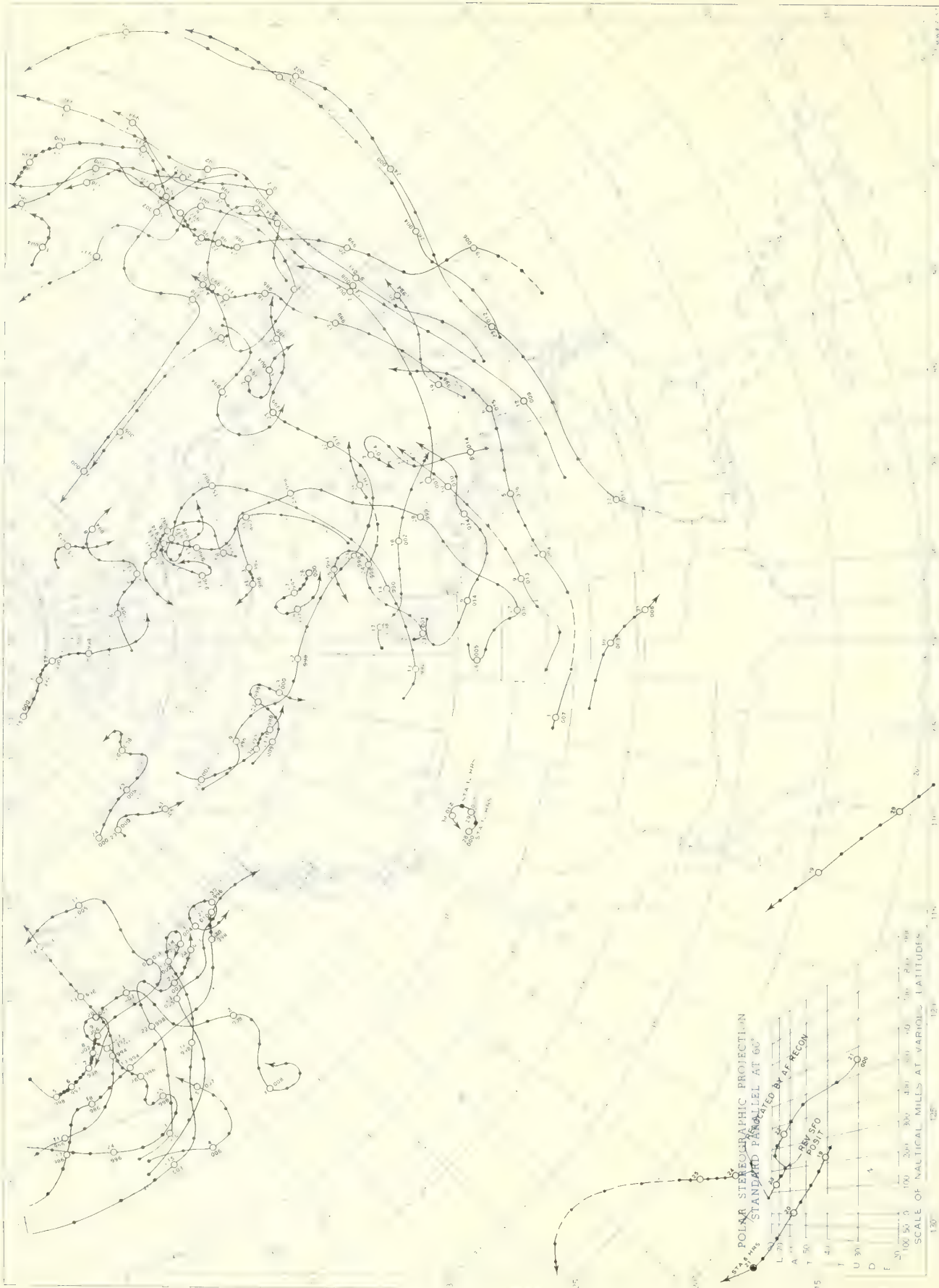
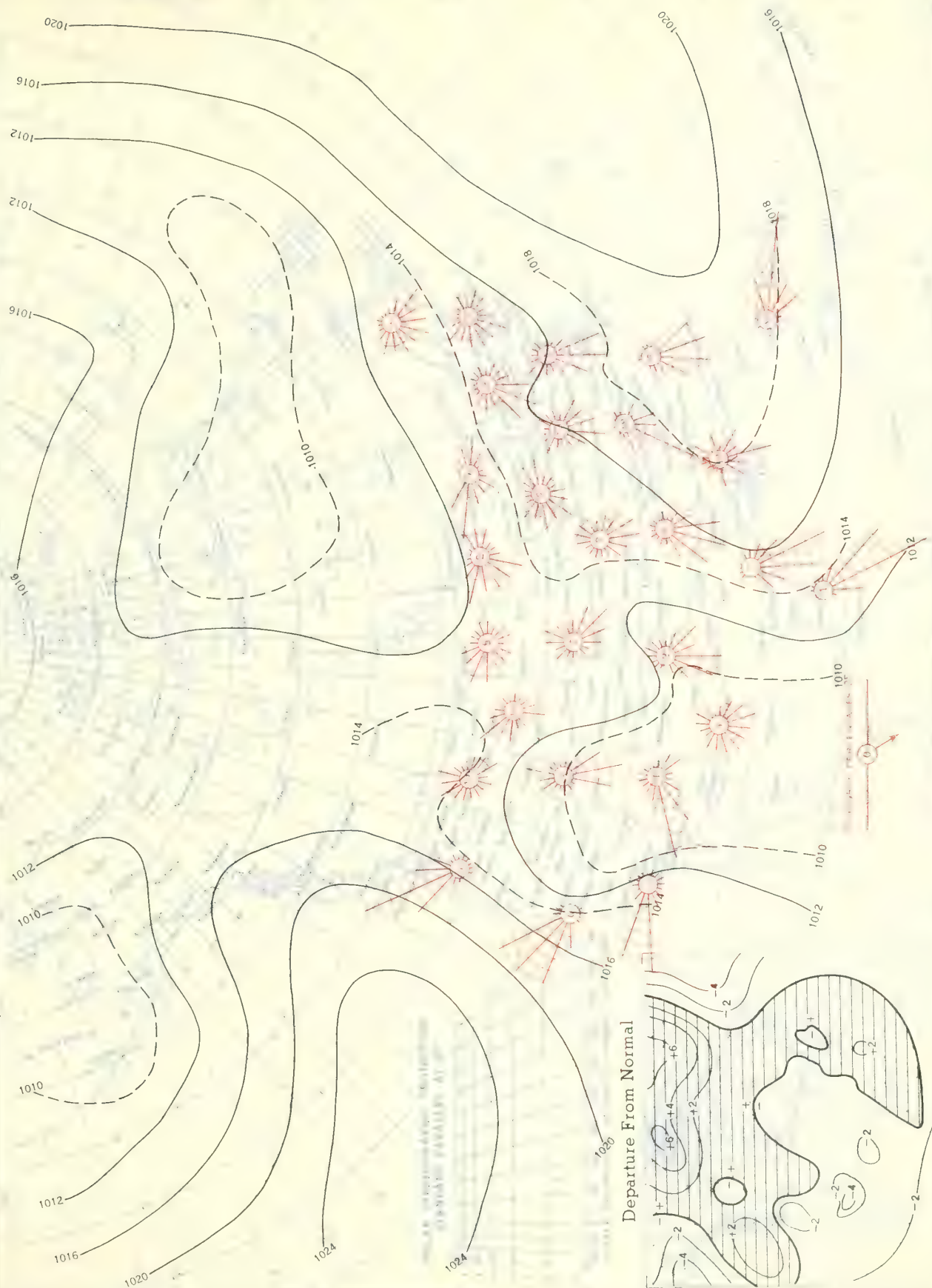
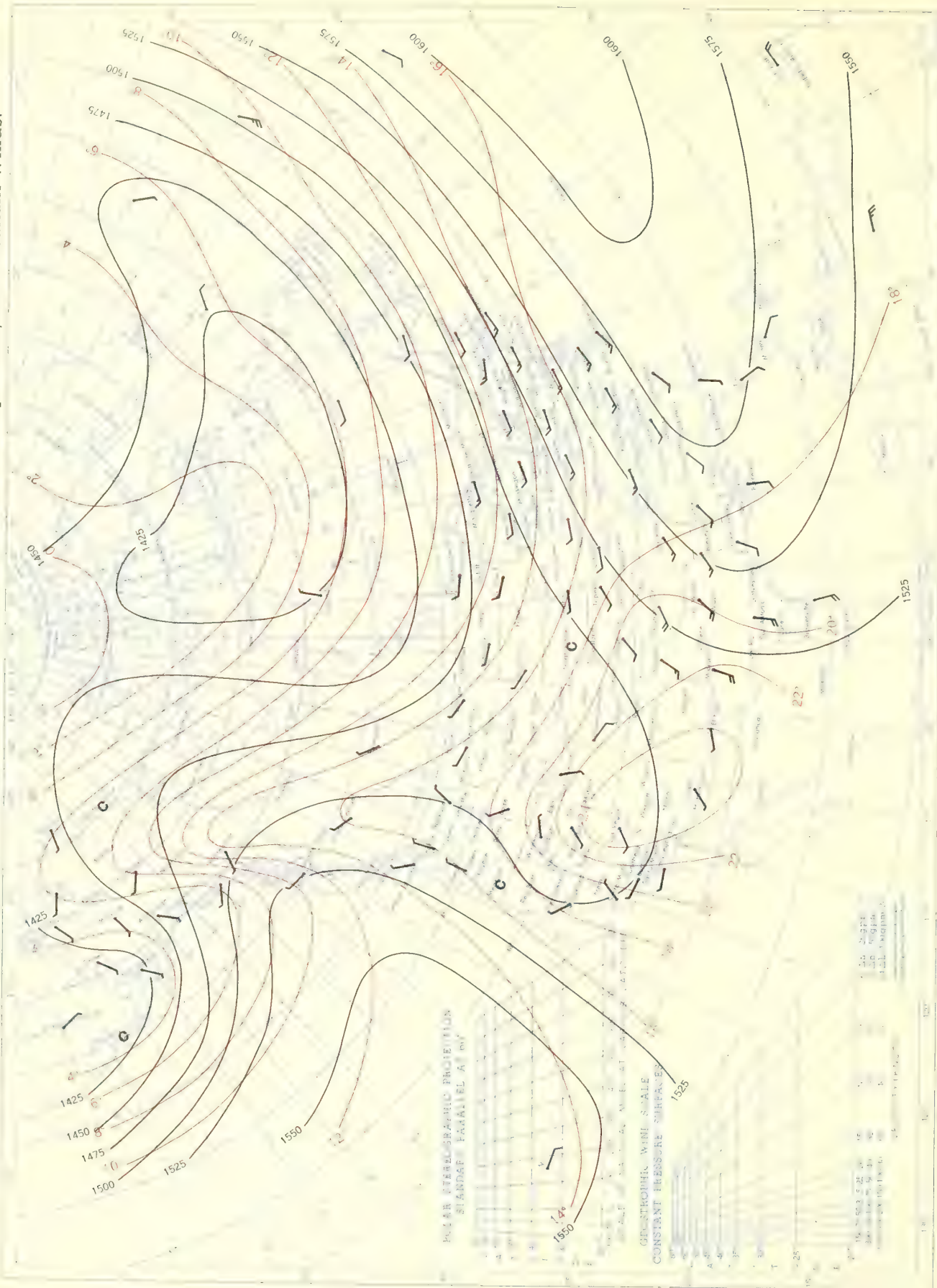


Chart No. 1. Average Sea Level Pressure (mb.) and Surface Wind (knots) from Normal, July 1958.



Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

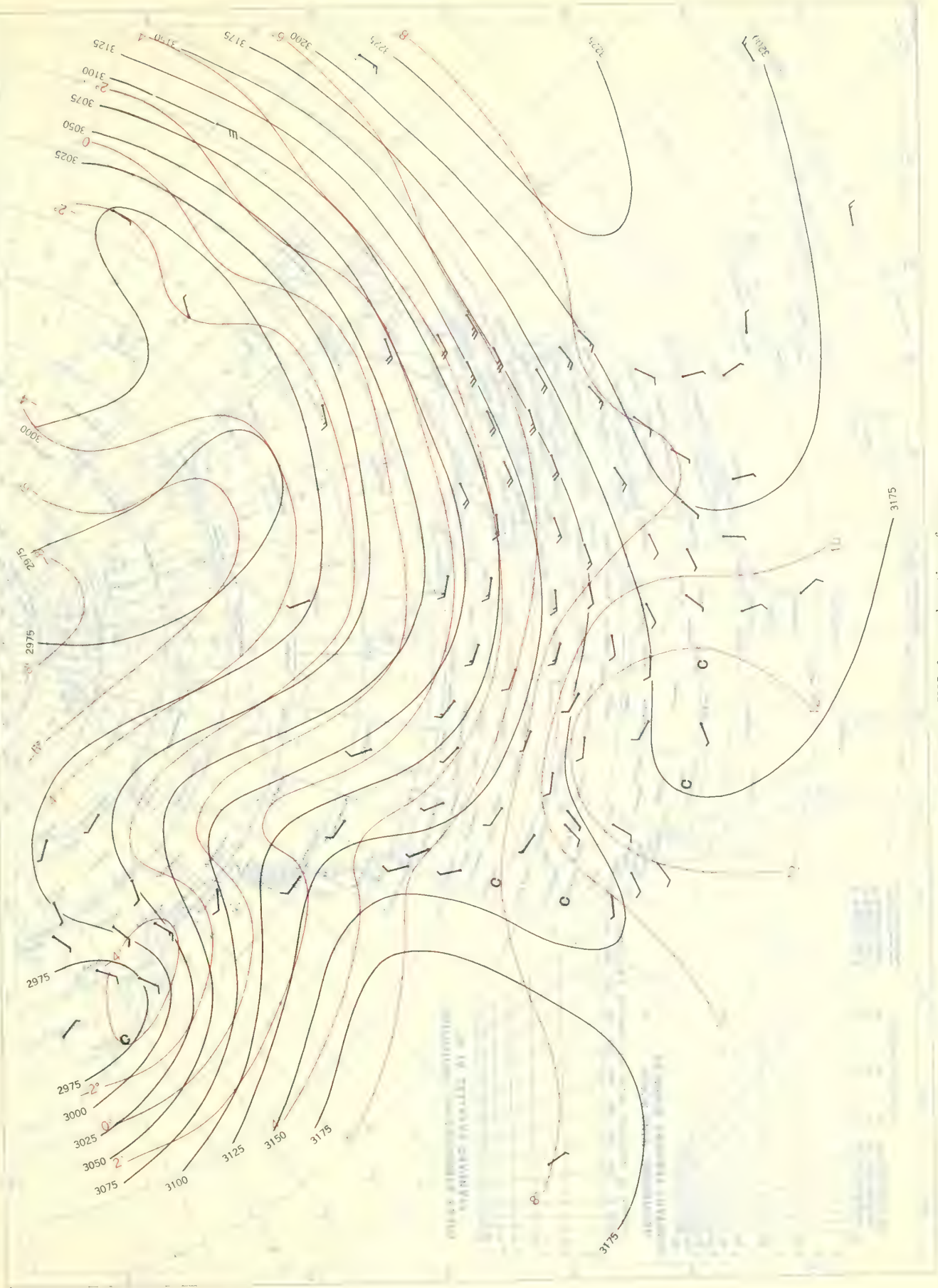
Chart XII. 850-mb. Surface, 1200 GMT, July 1958. Average Height and Temperature, and Resultant Winds.



Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on semi observations.

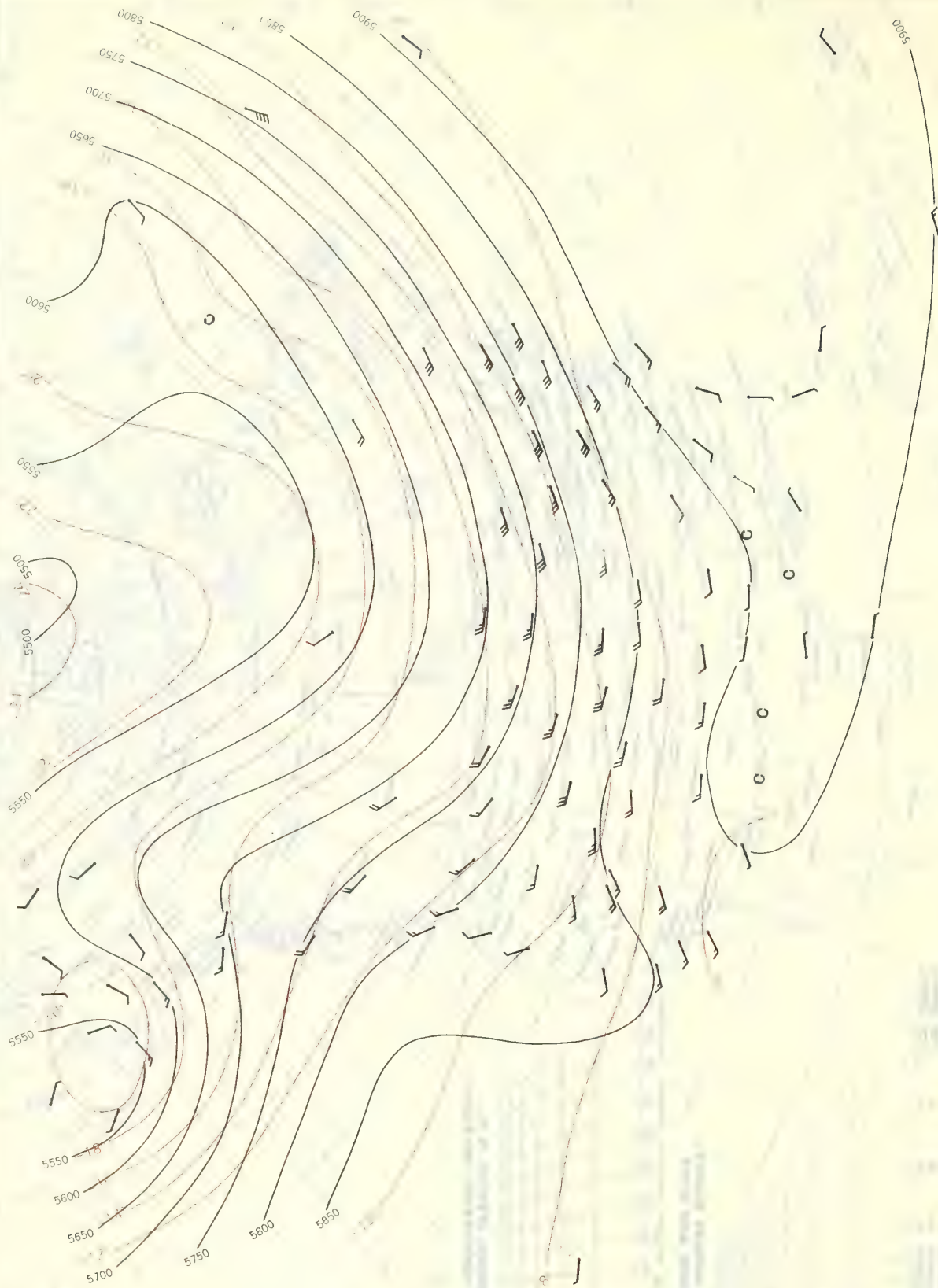
Chart XIII. 850-mb. Surface, 1200 GMT, July 1958. Average Height and Temperature, and Resultant Winds.

Chart XIII. 700-mb. Surface, 1200 GMT, July 1958. Average Height and Temperature, and Resultant Winds.



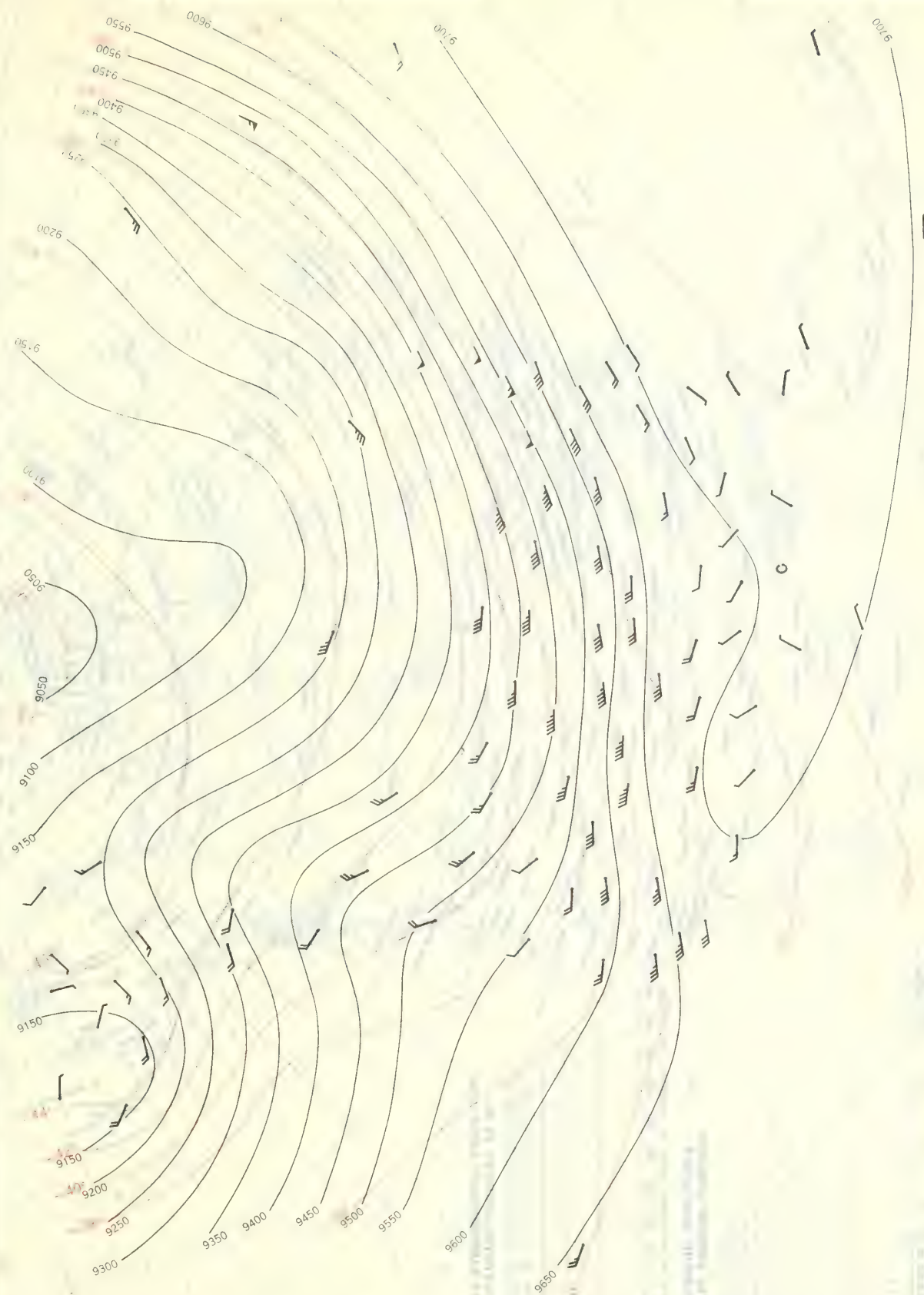
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, July 1958. Average Height and Temperature, and Resultant Winds.



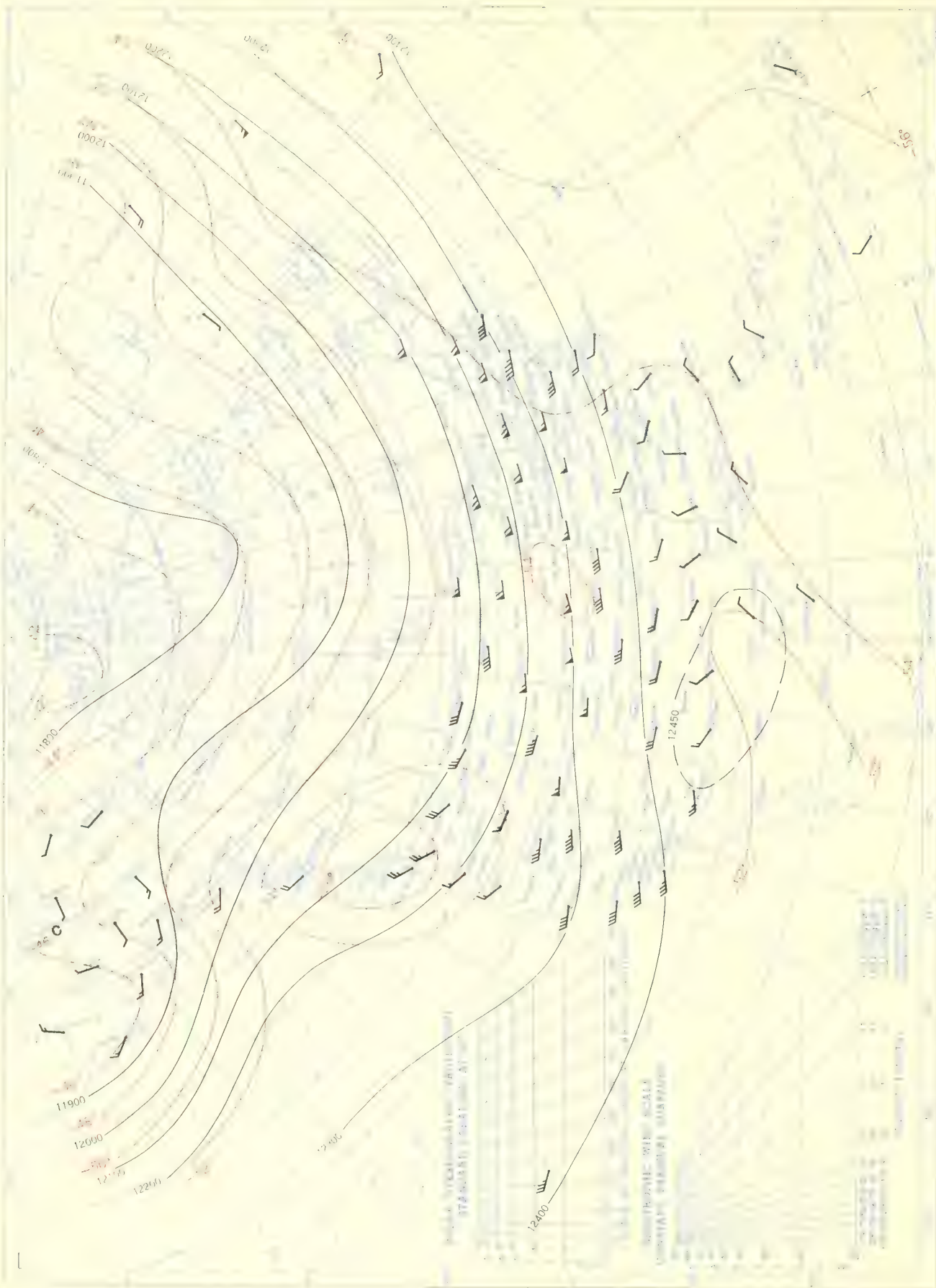
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, July 1958. Average Height and Temperature, and Resultant Winds.



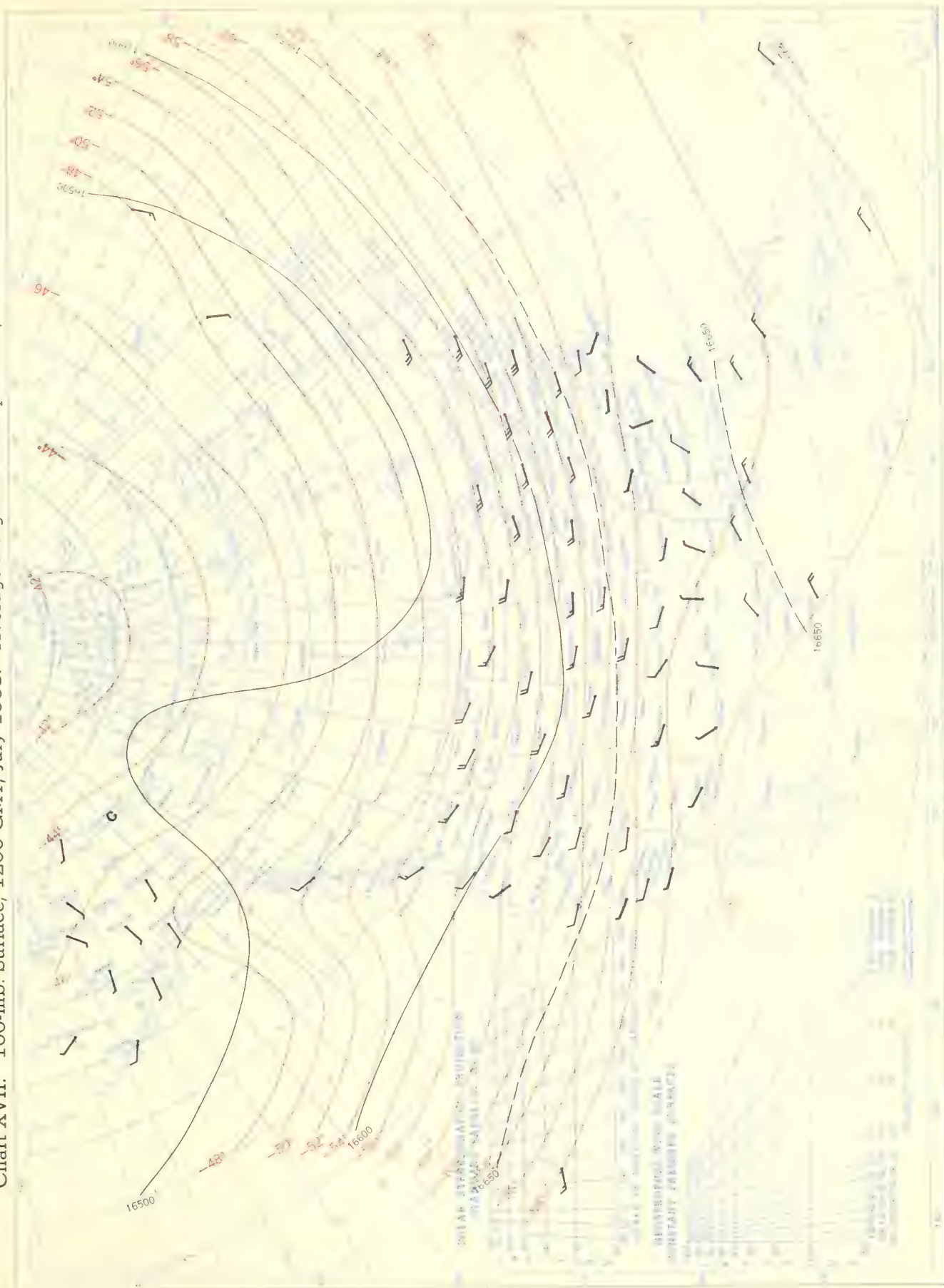
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, July 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, July 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE

SINCLAIR WEEKS, Secretary

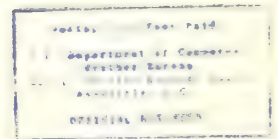
WEATHER BUREAU

F. W. REICHELDERFER, Chief



CLIMATOLOGICAL DATA

NATIONAL SUMMARY



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AUGUST 1958
Volume 9 No. 8



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CHARTS I-XVII

NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 8

AUGUST 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

Unusually warm weather in the Far West maintained a high fire hazard, and frequent thunderstorms were responsible for numerous lightning-set range and forest fires. Drought in parts of the North Central Interior persisted, due to continued warm, dry weather.

In the Corn Belt, normal to below normal precipitation favored crop development that had been slowed by cool, wet weather in July. Severe local storms were less frequent than usual. Hurricane Daisy brushed the middle Atlantic and southern New England coasts, but caused little or no damage.

TEMPERATURES.--West of the Continental Divide, abnormally warm weather persisted nearly all month, and several stations with longterm records reported their highest average temperatures for August on record. Among these were Sacramento and Red Bluff, Calif., with 79° and 85°, respectively; Medford and Portland, Oreg., with 76° and 72°, respectively; and Seattle, Wash., with 69°. The temperature rose to 90° or above on 27 days at Sacramento, Calif., another August record there; and at Red Bluff, Calif., this was the first August during which the temperature never fell below 60°.

August was the fourth consecutive abnormally warm month in Washington, Oregon, and along the Pacific coast, and the summer in these areas was among the warmest on record. Summer (June, July, and August) averages were the highest on record at Portland, Oreg., and Seattle, Wash. Furthermore, many stations had a record number of days with 90° or above for the summer. Spokane, Wash., had 36 such days, a new seasonal record with September yet to be heard from. Yakima and Walla Walla, Wash., reported 60 and 62 such days, respectively, new records for the period January 31 to August 31.

A hot summer also was experienced in Arizona and New Mexico where average temperatures for all three summer months were above normal. Roswell, N. M., turned in its highest summer average of 82°.

East of the Continental Divide, the first half of August was abnormally warm, the second half abnormally cool; and temperatures for the month averaged out close to normal. The greatest temperature abnormalities during the month in this region was the cold snap during the week ending the 25th when a cold air mass moved down through the mid-continent area to the Gulf of Mexico. Madison, Wis., on the 25th recorded 37°, the lowest temperature ever observed there in August during a record dating back more than 80 years. Cranmoor, Wis., recorded 24° on the 25th; International Falls, Minn., 32° on the 22d; Grand Marais, Mich., 31° on the 23d; and light frost was reported at higher elevations in the Black Hills of South Dakota. Fortunately, these low temperatures caused no serious crop losses.

PRECIPITATION.--The most important feature of the rainfall for August was the decrease in both frequency and amounts in the area extending from the central Great Plains eastward through the Ohio Valley. Normal to below normal monthly totals of 1 to 4 inches generally in this area for August

may be compared with the 6 to 10 inches for July. Most of the month's rainfall occurred during the first half and caused flooding in many sections, since streams were already high or above flood stage from heavy rains in July.

August rainfall was extremely light in an area including most of the Dakotas, Montana, Washington, western Oregon, and coastal sections of California north of San Francisco. Monthly totals generally were less than 25 percent of normal in South Dakota, and less than 50 percent in the remainder of the area. The worst effects of this deficient rainfall were felt in the northern Great Plains, where moisture for crops had been either short or barely sufficient during the previous part of the growing season. Reports at the end of the month indicated a need for rain in western Minnesota, most of Wisconsin, northwestern Iowa, most of South Dakota, northern and central North Dakota, and the eastern and parts of the western portions of Montana. Some of the following station-reports indicate to some extent a measure of the dry spell: In Idaho, Boise reported the driest August since 1941 and Pocatello the second driest on record. In Montana, Glasgow reported its twelfth dry month in a row and only 47 percent of precipitation for the period; Devils Lake, N. Dak., had only 0.80 inch or 35 percent of normal; Portland, Oreg., had only 0.03 inch for August, and also had 57 consecutive days without measurable rain, a near record dry spell broken by 0.01 inch on the 27th; and Milwaukee, Wis., for the year to-date has had only 10.37 inches, the driest such period on record there.

Elsewhere rainfall abnormalities were not unusual for a summer month. In much of the Southeast, rainfall was much below normal and some local areas were getting dry, but crops were not seriously affected due to subsoil moisture from rains in July.

DESTRUCTIVE STORMS AND UNUSUAL WEATHER PHENOMENA.--August storms and other adverse weather conditions were blamed for at least 53 deaths, 112 injuries, and property and crop losses exceeding \$11 million.

Nebraska bore the brunt of the August storms, with damage in the State about \$3.5 million. The worst storm (hail and wind) in the State left a path of destruction 3 to 4 miles wide from Comstock to Kearny, a distance of more than 50 miles, on the 14th, causing losses estimated at more than \$1 million. This storm, which destroyed or damaged fields of corn and sugar beets and a few fields of commercial tomatoes, was described as one of the worst August hailstorms (some stones as big as baseballs) on record for the State.

On the 20th, the rare and little understood phenomenon of ball lightning was reported to have occurred in Topeka, Kans., at 9:30 p.m. local time. The ball was described as about the size of a large dishpan and quite red. It ran along a fence for about 2 rods ending with a violent explosion.

Another unusual lightning phenomenon was reported to have occurred at Framingham, Mass., on the 7th, when lightning killed 300 tomato plants.

CONDENSED CLIMATOLOGICAL SUMMARY

AUGUST 1958

Section	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.	
Alabama	2 Stations	99	12+	2 Stations	50	27	Bay Minette	7.28	Centre	0.00	
Arizona	Davis Dam	117	10	do	37	26+	Crown King	9.71	3 Stations	.00	
Arkansas	3 Stations	102	29+	2 Stations	48	26+	Leola	10.84	Osceola	.26	
California	Cow Creek	122	12+	3 Stations	32	30+	White Mtn 2	4.30	145 Stations	.00	
Colorado	Gateway 1 SW	106	12	Fraser	21	31	North Lake	5.01	Montrose No 1	.05	
Connecticut	Norwalk Gas Pl	92	16	Coventry	38	20	Pachaug Forest	6.70	Danbury	2.16	
Delaware	Middletown 2S	94	7	2 Stations	51	19	Lewes ISW	12.53	Middletown 2S	6.84	
Florida	Fort Drum 5NW	101	2	3 Stations	61	30+	Everglades	13.02	Vero Beach CAA AP	1.99	
Georgia	3 Stations	101	23	Blairsville Exp. Sta.	49	29	Neel Gap	8.03	Sparta 2NNW	.46	
Idaho	Grand View	108	7	Obsidian 2NNW	24	31+	Island Park Dam	1.93	4 Stations	.00	
Illinois	Morrison	98	30	2 Stations	40	25	Joliet Brandon Rd	6.82	Springfield WB AP	.67	
Indiana	3 Stations	96	23+	Greensburg 3 SW	42	26	La Porte	9.41	Princeton 1W	1.43	
Iowa	Inwood 2W	102	17	Saratoga 2E	31	25	Iowa Falls	5.98	Inwood 2W	.39	
Kansas	Greensburg	106	28	Horton	43	25	Meade	6.87	Zook 9E	.35	
Kentucky	Benton 2	97	13	Mammoth Cave Park	43	27+	Midway	8.90	Golden Pond 8N	.74	
Louisiana	2 Stations	102	7+	Franklinton 3SSE	55	27	Port Sulphur	13.31	Spearsville	1.75	
Maine	West Buxton 2NNW	97	31	3 Stations	35	24+	Caribou WB AP	8.45	South Andover	1.45	
Maryland	Middle River 1N	97	1	New Germany	37	27	Denton	12.19	Clear Spring 1ENE	2.34	
Massachusetts	Framingham	92	5	West Cummington	40	20	Chatham Lt. Sta.	9.74	East Pepperell	2.01	
Michigan	Huron Mountain	95	9	Vanderbilt Trout Sta.	29	18+	Bergland Dam	8.06	Detour 1N	.95	
Minnesota	Beardsley	106	2	Int. Falls WB Airport	32	22	Isabella 1W	7.53	2 Stations	.30	
Mississippi	Utica	99	7+	2 Stations	50	27+	Biloxi City	11.22	Coffeetown	.31	
Missouri	2 Stations	102	29	Shelbina	41	25	Greenville 4NNW	6.69	Carthage	.28	
Montana	Miles City	111	8	Dell 12SSW	21	30	Bozeman 12NE	2.93	Biddle	.00	
Nebraska	3 Stations	104	14+	Nenzel 20S	36	24	Upland	8.94	Chadron CAA AP	.15	
Nevada	2 Stations	115	12+	Deeth	30	3	Mountain City RS	1.85	Indian Springs	T	
New Hampshire	Campton	99	31	Fabyan	34	28	Lancaster	4.25	Gilmanton	.94	
New Jersey	Hammonton 2NNE	95	1	Charlotteburg	43	20	Cape May 3W	11.34	Irvington	2.24	
New Mexico	Dunlap	106	16	Eagle Nest	31	31	Cloudcroft 1	7.51	Engle	.23	
New York	Cairo	96	21	Little Valley	36	28	Hooker	6.70	Alcove Dam	.98	
North Carolina	2 Stations	100	1	Transou	40	29	Manteo	13.54	Hendersonville	1.08	
North Dakota	Mandan Ft. Lincoln Pk	110	9	Willow City	26	31	Fargo WB Airport	3.93	Raub 10SSW	.11	
Ohio	2 Stations	94	30+	Charles Mill Dam	37	26	Chardon	10.12	Carroll 2SSE	2.00	
Oklahoma	do	108	28+	Grove	49	25	Seminole	13.03	Eldorado	.02	
Oregon	The Dalles	110	25	Seneca	25	30	Trail 14NE	1.94	8 Stations	.00	
Pennsylvania	West Chester	95	1	Kane 1NNE	33	27	Ford City 4S Dam	9.34	Reading WB City	1.94	
Rhode Island	Providence WB AF	87	15+	Kingston	43	19	Kingston	7.18	Greenville	4.04	
South Carolina	Bamberg	101	22+	3 Stations	55	29	Summerville 2WNW	11.26	McCormick 9E	1.34	
South Dakota	Cheyenne Agency	110	8	Deerfield 5NW	28	31+	White Lake	4.40	Pine Ridge	.06	
Tennessee	7 Stations	97	14+	Waynesboro	44	27	Stone Mountain	10.48	Brownsville	.62	
Texas	2 Stations	110	14+	2 Stations	53	24	2 Stations	9.85	Several Stations	.00	
Utah	do	109	12+	Strawberry Res	30	31	Elberta	3.02	2 Stations	.00	
Vermont	Cavendish	91	31	West Burke	35	24	Rutland	4.87	Cavendish	1.10	
Virginia	Fredericksburg	98	1	Burkes Garden	42	28	Urbanna	13.71	Stuarts Draft	2.43	
Washington	Trinidad 2SSE	108	24	2 Stations	34	30+	Cathlamet 9NE	3.80	5 Stations	.00	
West Virginia	Williamson	97	12	do	35	28+	Pickens 1	11.44	McMechem	2.71	
Wisconsin	4 Stations	97	30+	Coddington 1E	27	25	Bayfield 6N	9.22	Kenosha	.99	
Wyoming	3 Stations	103	17+	Bondurant	21	31	Laramie CAA AP	3.58	Lysite	.00	
Puerto Rico	Dos Bocas	98	22	Guineo Reservoir	54	31	Maricao	15.19	Cambalache Exp. Forest	1.61	

+ And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

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See footnotes at end of table

CLIMATOLOGICAL DATA

AUGUST 1958

State and station	Pressure			Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Possible sunshine								
	Elevation feet	Station number	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		Date		Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)				
																			In	In			In	In							M	M	M	M
IOWA	ft	Mo	Mo	F	F	F	F	F	F	F	F	F	F	%	In	In	In	In	In	In	M	M	M	M	O-3	4-7	8-10	O-10	%					
Burlington	691	989.5	1014.7	85	63	73.8	-6	93	30	44	25	9	0	65	77	4.66	1.35	1.51	9	8	0.0	0	8.4	SW	34	N 15+	11	13	7	4.9	78			
Des Moines	948	983.4	1014.3	85	64	74.4	-6	96	28	45	25	13	0	64	75	1.78	-1.98	1.46	6	5	0.0	0	8.6	SSW	34	N 30	9	16	6	5.1	71			
Dubuque	1065	988.2	1014.2	81	59	69.9	-8	93	3	42	25	2	0	60	69	4.87	1.27	2.00	9	13	0.0	0	10.7	SSE	40	N 15	17	10	5	5.2	--			
Sioux City	1094	972.9	1013.3	87	62	74.7	1.1	97	3	47	31	17	0	63	70	1.64	-1.08	1.75	5	4	0.0	0	7.9	ESE	32	S 4	13	11	7	4.3	89			
Waterloo	870	988.2	1013.3	87	63	74.7	-8	93	3	40	25	5	0	67	77	2.59	-1.07	1.75	5	4	0.0	0	9.2	---	---	---	---	---	---	---	---			
KANSAS																																		
Concordia (U)	1375	964.4	1012.9	88	67	77.5	-1.0	98	14	55	25	16	0	67	77	2.16	-1.04	.85	7	8	0.0	0	6.1	S	26	N 15+	21	3	7	3.3	80			
Dodge City	2594	927.2	1012.9	90	66	77.7	-9	99	28+	56	25	18	0	61	61	1.85	-.83	.98	9	9	0.0	0	12.4	SSE	42	N 24	17	8	6	3.8	83			
Goodland	3645	889.6	1013.8	90	58	73.9	-0	98	28	47	31	19	0	56	60	2.01	-.54	1.25	6	8	0.0	0	10.7	SSE	*40	N 15	17	10	4	3.6	--			
Topeka	777	979.0	1014.2	87	65	76.2	-1.4	100	29	47	25	15	0	66	74	3.71	-.95	1.95	5	3	0.0	0	7.5	S	31	NE 20	15	12	4	4.1	74			
Wichita	1321	965.5	1013.2	90	67	78.6	-1.3	101	29	55	25	16	0	64	66	2.93	-.03	2.11	6	5	0.0	0	10.0	SSE	45	NW 16	13	10	8	4.4	71			
KENTUCKY																																		
Lexington	979	979.7	1015.1	84	64	74.1	-9	90	11+	53	27	2	0	65	77	4.02	-.65	1.56	10	7	0.0	0	7.0	S	---	---	15	9	7	4.0	--			
Louisville	474	995.3	1014.3	88	65	76.4	.3	96	11	55	28	15	0	65	73	3.45	-.39	1.61	8	7	0.0	0	7.0	S	37	NW 11	14	10	7	4.4	75			
LOUISIANA																																		
Baton Rouge	61	1011.9	1014.8	92	72	81.8	1.1	98	6	62	28	24	0	71	76	4.53	-1.34	1.07	8	11	0.0	0	4.8	N	---	---	11	11	9	5.4	--			
Lake Charles	12	1012.5	1014.0	91	75	83.0	.7	97	2	70	29	22	0	73	75	9.41	4.75	3.3	10	0	0.0	0	6.8	ESE	*29	ESE 12	8	13	10	5.6	--			
New Orleans (U)	3	1012.2	1014.4	90	76	83.4	-0	96	1	71	27	18	0	73	73	3.76	-2.65	1.19	14	8	0.0	0	5.0	---	*24	W 23	10	14	7	5.0	66			
New Orleans	3	1012.2	1014.4	90	74	81.8	-4	95	1	68	28	18	0	71	75	3.19	-2.45	1.51	11	8	0.0	0	7.4	SSE	*40	N 12	12	11	8	4.8	66			
Shreveport	282	1004.4	1013.4	93	72	82.1	-2.1	98	13	63	26	26	0	70	71	2.22	-.15	.93	6	4	0.0	0	7.1	SSE	---	---	11	14	6	5.0	76			
MAINE																																		
Caribou	621	987.2	1010.3	72	52	62.1	3	85	3	41	16	0	0	55	79	8.45	4.92	4.14	15	5	0.0	0	9.1	WSW	*35	N 15	6	9	16	6.9	--			
Portland	61	1008.1	1012.1	79	54	66.5	1	87	15	43	19	0	0	59	79	2.21	-.38	.93	7	5	0.0	0	10.0	S	26	SW 19+	12	13	6	4.9	74			
MARYLAND																																		
Baltimore (U)	14	1009.5	1014.5	82	65	75.4	-1.0	92	15	61	27	5	0	65	77	4.74	.36	1.57	13	--	0.0	0	10.5	WSW	47	SW 12	9	11	11	5.5	59			
Baltimore	146	1009.5	1014.5	82	65	75.4	-1.0	92	15	61	27	5	0	65	77	4.74	.36	1.57	13	--	0.0	0	10.5	WSW	47	SW 12	9	11	11	5.5	59			
Frederick	294	988.2	1013.3	83	61	71.7	-2.9	91	21+	49	19	4	0	65	77	2.77	-1.26	.73	9	--	0.0	0	10.5	WSW	47	SW 12	9	11	11	5.5	59			
MASSACHUSETTS																																		
Blue Hill Obs. (R)	629	990.1	1013.1	78	60	68.0	5	86	15	48	19	0	0	67	77	5.41	1.33	1.72	16	9	0.0	0	13.1	SSW	35	S 25	10	11	10	5.4	61			
Boston	15	1007.8	1012.4	81	64	72.4	.9	90	7	56	19	1	0	61	71	5.37	2.14	1.18	18	9	0.0	0	11.3	SW	*65	NNW 8	12	9	10	5.1	73			
Nantucket	43	1013.1	1013.8	73	61	67.3	2	78	5	56	19+	0	0	63	86	6.50	3.07	3.10	10	3	0.0	0	12.8	SW	*42	N 29	8	8	15	6.2	65			
Pittsfield	1153	971.4	1013.3	77	55	66.0	2	86	31	45	20	0	0	67	77	3.73	-.58	1.00	8	5	0.0	0	12.8	SW	---	---	---	---	---	---	---			
Worcester	986	976.9	1013.3	76	39	67.4	-7	85	31	51	19	0	0	67	77	3.88	-.47	1.34	13	7	0.0	0	12.4	---	---	---	---	---	---	---	---			
MICHIGAN																																		
Alpena (U)	587	990.2	1013.3	75	56	65.8	0	88	9+	44	18	0	0	69	79	1.89	-.70	.62	12	6	0.0	0	9.4	---	34	N 31	12	11	8	5.0	75			
Detroit	619	987.1	1013.6	82	60	71.0	-3	92	3	51	18	2	0	57	65	2.25	-.37	1.60	7	6	0.0	0	9.9	SW	*41	NW 31	10	15	6	4.8	72			
Detroit (Willow Run)	722	985.4	1013.4	82	59	70.6	-5	93	3	48	18	2	0	58	67	1.89	-.82	.86	6	5	0.0	0	7.3	SW	*40	NNW 7	10	14	7	5.2	--			
East Lansing (U)	856	989.8	1013.3	83	59	70.7	1.7	92	3	44	18	4	0	69	79	1.89	-.70	.62	12	6	0.0	0	9.4	---	34	N 31	12	11	8	5.0	75			
Escanaba (U)	594	989.8	1013.3	83	59	70.7	1.7	92	3	44	18	4	0	69	79	1.89	-.70	.62	12	6	0.0	0	9.4	---	34	N 31	12	11	8	5.0	75			
Flint	761	985.4	1013.4	80	56	68.1	-7	89	30+	44	18	0	0	57	70	3.46	.69	1.69	9	7	0.0	0	5.9	SSW	*23	WSW 31	10	13	8	5.3	--			
Grand Rapids	681	988.5	1013.5	82	58	70.1	-4	92	3	46	26	2	0	57	67	4.84	.26	4.26	8	8	0.0	0	9.2	WSW	29	SW 31	9	14	8	5.4	77			
Marquette (U)	677	984.8	1013.4	79	57	65.1	-2	93	9	45	18	2	0	68	78	2.98	.27	1.46	11	8	0.0	0	7.9	---	26	SW 29+	9	15	7	5.6	70			
Muskegon	627	990.2	1013.4	79	57	65.1	-2	93	9	45	18	2	0	68	78	2.98	.27	1.46	11	8	0.0	0	7.9	---	26	SW 29+	9	15	7	5.6	70			
Sault Ste. Marie	721	989.8	1012.4	73	52	62.8	-1.1	86	2	38	23	0	0	54	77	2.30	-.32	.50	13	9	0.0	0	9.3	WNW	*24	NW 17	10	11	10	5.5	59			
MINNESOTA																																		
Duluth	1409	972.2	1012.7	75	53	63.6	-1.2	92	9	41	22	2	0	53	73	3.85	-.42	1.34	10	10	0.0	0	11.3											

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Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.
 * Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
 + And also on an earlier date or dates.
 a Maximum hourly average. † Airport data. ‡ Peak gust. - 340 -
 # Number of days maximum 70° or above for Alaskan stations.
 Ø Station pressures apply to elevations shown in Table 10b of the annual issue of this publication.
 M Missing

HEATING DEGREE DAYS

(Base 65°F.)

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State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				KANSAS				NEW YORK				TEXAS (Cont'd.)			
Birmingham	0	0	0	Concordia (U)	0	0	0	Albany	8	16	24	Port Arthur	0	0	0
Mobile	0	0	0	Dodge City	0	2	0	Binghamton	27	50	79	San Angelo	0	0	0
Montgomery	0	0	0	Goodland	4	4	0	Buffalo	19	21	46	San Antonio	0	0	0
ARIZONA				Topeka	5	5	8	New York (U)	0	0	0	Victoria	0	0	0
Flagstaff	11	38	127	Wichita	0	0	0	New York	0	0	0	Waco	0	0	0
Phoenix (U)	0	0	0	KENTUCKY				Rochester	31	36	43	Wichita Falls	0	0	0
Phoenix	0	0	0	Lexington	1	1	0	Schenectady	2	3	19	UTAH			
Prescott	0	0	0	Louisville	0	0	0	Syracuse	17	24	29	Midford	0	0	0
Tucson	0	0	0	Pikeville (U)	0	0	0	NORTH CAROLINA				Salt Lake City	0	0	0
Winslow	0	0	0	LOUISIANA				Asheville (U)	0	0	0	VERMONT			
Yuma	0	0	0	Baton Rouge	0	0	0	Cape Hatteras (R)	0	0	0	Burlington	21	41	66
ARKANSAS				Lake Charles	0	0	0	Charlotte	0	0	0	VIRGINIA			
Ft. Smith	0	0	0	New Orleans (U)	0	0	0	Greensboro	0	0	0	Lynchburg	0	0	0
Little Rock	0	0	0	New Orleans	0	0	0	Raleigh	0	0	0	Norfolk	0	0	0
Texarkana	0	0	0	Shreveport	0	0	0	Wilmington	0	0	0	Richmond	0	0	0
CALIFORNIA				MAINE				Winston-Salem	0	0	0	Roanoke	0	0	0
Bakersfield	0	0	0	Caribou	109	197	218	NORTH DAKOTA				WASHINGTON			
Bishop	0	0	0	Greenville (U)	105	192		Bismarck	39	88	66	Olympia	21	28	174
Blue Canyon	1	44	77	Portland	421	449	71	Devils Lake (U)	78	149	108	Seattle (U)	13	14	94
Burbank	0	0	0	MARYLAND				Fargo	56	94	66	Seattle-Tacoma	19	34	145
Eureka (U)	220	447	515	Baltimore (U)	0	0	0	Grand Forks	70	120		Spokane	10	15	45
Fresno	0	0	0	Baltimore	0	0	0	Pembina	84	132		Stampede Pass (R)	182	291	511
Los Angeles (U)	0	0	0	Frederick	3	3	0	Williston (U)	36	91	71	Tatoosh Island (R)	214	457	583
Los Angeles	0	0	53	MASSACHUSETTS				OHIO				Walla Walla (U)	0	0	0
Mt. Shasta (R)	0	25	83	Blue Hill Obs. (R)	23	39		Akron	29	34	17	Yakima	12	15	7
Oakland	2	33	161	Boston	2	6	7	Cincinnati (U)	0	0	0	WEST VIRGINIA			
Red Bluff	0	0	0	Nantucket	11	26	56	Cincinnati	2	3	6	Charleston	1	1	0
Sacramento (U)	0	0	0	Pittsfield	40	72	88	Cleveland	21	21	10	Elkins	28	30	40
Sacramento	0	0	0	WICHIGAN				Columbus	7	8	8	Huntington (U)	0	0	0
Sandberg (R)	0	11	0	Alpena (U)	61	124	135	Dayton	7	9	5	Parkersburg (U)	2	2	0
San Diego	0	0	18	Detroit	8	9	8	Sandusky (U)	8	9	0	WISCONSIN			
San Francisco (U)	121	299	366	Detroit (Willow Run)	12	13	10	Toledo	19	23	12	Green Bay	52	79	90
San Francisco	1	26	280	East Lansing (U)	17	18		Youngstown	40	41	19	La Crosse	30	34	31
San Jose	0	4	18	Escanaba (U)	76	120	157	OKLAHOMA				Madison	26	38	44
Santa Maria	10	93	192	Grand Rapids	22	27	43	Oklahoma City	0	0	0	Milwaukee	16	29	52
COLORADO				Marquette (U)	95	186	156	Tulsa	0	0	0	OREGON			
Alamosa	37	70	185	Muskegon	28	38	74	Astoria	91	177	249	BURNS (U)	9	34	47
Colorado Springs	7	23	29	S. Ste. Marie	116	257	235	Eugene	2	2	67	Meacham	35	77	190
Denver	4	18	16	MINNESOTA				Medford	0	1	0	Pendleton	0	1	0
Grand Junction	0	0	0	Duluth (U)	111	235	157	Portland (U)	2	2	27	Portland (U)	5	8	47
Pueblo	0	1	0	Duluth	114	212	147	Portland	1	1	1	Roseburg	1	1	44
CONNECTICUT				Internat. Falls	161	248	188	Salem	2	2	44	Sexton Summit (R)	15	37	157
Bridgeport	1	1	0	Minneapolis	37	49	25	PENNSYLVANIA				Allentown	2	2	2
Hartford	10	13	14	Rochester	62	102	62	Harrisburg	0	0	0	Philadelphia (U)	0	0	0
New Haven	3	6	18	St. Cloud	70	106	85	Philadelphia (U)	0	0	0	Pittsburgh (U)	20	24	20
DELAWARE				MISSISSIPPI				Reading (U)	0	0	5	Scranton	15	15	18
Wilmington	0	0	0	Jackson	0	0	0	Williamsport	7	8	16	THOMAS (U)	0	0	0
DIST. OF COLUMBIA				Meridian	0	0	0	RHODE ISLAND				Block Island	3	9	27
Washington (U)	0	0	0	Vicksburg (U)	0	0	0	Providence	6	8	26	SOUTH CAROLINA			
Washington	0	0	0	MISSOURI				Charleston (U)	0	0	0	Charleston	0	0	0
FLORIDA				Columbia	4	4	6	Columbia	0	0	0	Columbia	0	0	0
Apalachicola (U)	0	0	0	Kansas City	2	2	0	Florence	0	0	0	Greenville	0	0	0
Daytona Beach	0	0	0	St. Joseph	5	5	5	Spartanburg	0	0	0	TEXAS			
Fort Myers	0	0	0	St. Louis (U)	0	0	0	Abilene	0	0	0	Amarillo	0	0	0
Jacksonville	0	0	0	St. Louis	2	2	0	Austin	0	0	0	Brownsville	0	0	0
Key West	0	0	0	Springfield	1	3	8	Corpus Christi	0	0	0	Dallas	0	0	0
Miami (U)	0	0	0	MONTANA				Del Rio (U)	0	0	0	El Paso	0	0	0
Miami	0	0	0	Billings	11	55	28	El Paso	0	0	0	Ft. Worth	0	0	0
Miami Beach	0	0	0	Glacgow	21	63	44	Galveston (U)	0	0	0	Galveston	0	0	0
Orlando	0	0	0	Great Falls	13	119	74	Houston (U)	0	0	0	Laredo	0	0	0
Pensacola (U)	0	0	0	Havre (U)	11	71	58	Lubbock	0	0	0	Midland	0	0	0
Tallahassee	0	0	0	Helena	14	113	102	NEW HAMPSHIRE				Concord	24	45	68
Tampa	0	0	0	Kalispell	31	90	130	Mt. Washington Obs.	548	1028		NEW JERSEY			
West Palm Beach	0	0	0	Miles City	6	32	17	Atlantic City (U)	0	0	0	Newark	0	0	0
GEORGIA				Missoula	30	77	79	Trenton (U)	0	0	0	NEW MEXICO			
Athens	0	0	0	NEBRASKA				Albuquerque	0	0	0	Albuquerque	0	0	0
Atlanta	0	0	0	Grand Island	5	9	5	Clayton	0	7	0	Clayton	0	7	0
Augusta	0	0	0	Lincoln (U)	4	4	7	Roswell	0	0	0	Roswell	0	0	0
Columbus	0	0	0	Norfolk	5	5	17	NEW YORK				Albany	8	16	24
Macomb	0	0	0	North Platte	5	9	18	Binghamton	27	50	79	Buffalo	19	21	46
Rome	0	0	0	Omaha	9	9	5	New York (U)	0	0	0	New York	0	0	0
Savannah	0	0	0	Scottsbluff	1	6	0	Rochester	31	36	43	Rochester	31	36	43
IDAHO				Valentine	12	18	21	Schenectady	2	3	19	Schenectady	2	3	19
Boise	3	5	0	NEVADA				Syracuse	17	24	29	UTAH			
Lewiston	0	2	0	Elko	1	22	34	NORTH CAROLINA				Asheville (U)	0	0	0
Pocatello	5	12	0	Ely	3	37	66	Cape Hatteras (R)	0	0	0	Charlotte	0	0	0
ILLINOIS				Las Vegas	0	0	0	Greensboro	0	0	0	Raleigh	0	0	0
Cairo (U)	0	0	0	Reno	0	20	88	Wilmington	0	0	0	Winston-Salem	0	0	0
Chicago	4	4	0	Tonopah	0	0	5	NORTH DAKOTA				Bismarck	39	88	66
Chicago University	6	6		Winnemucca	0	16	17	Devils Lake (U)	78	149	108	Devils Lake (U)	78	149	108
Moline	21	25	8	NEW HAMPSHIRE				Fargo	56	94	66	Grand Forks	70	120	
Peoria	11	12	11	Concord	24	45	68	Pembina	84	132		Williston (U)	36	91	71
Springfield	5	7	6	Mt. Washington Obs.	548	1028		OKLAHOMA				Akron	29	34	17
INDIANA				NEW JERSEY				Cincinnati (U)	0	0	0	Cincinnati	2	3	6
Evansville	3	3	0	Atlantic City (U)	0	0	0	Cleveland	21	21	10	Columbus	7	8	8
Ft. Wayne	11	12	17	Newark	0	0	0	Dayton	7	9	5	Dayton	7	9	5
Indianapolis	6	6	0	Trenton (U)	0	0	0	Sandusky (U)	8	9	0	Sandusky (U)	8	9	0
South Bend	16	17	18	NEW MEXICO				Toledo	19	23	12	Toledo	19	23	12
IOWA				Albuquerque	0	0	0	Youngstown	40	41	19	OKLAHOMA			
Burlington	14	16	0	Clayton	0	7	0	Oklahoma City	0	0	0	Oklahoma City	0	0	0
Des Moines	27	31	17	Roswell	0	0	0	Tulsa	0	0	0	Tulsa	0	0	0
Dubuque	42	53	36	NEW YORK				OREGON				Astoria	91	177	249
Sioux City	11	15	25	Albany	8	16	24	Burns (U)	9	34	47	Burns (U)	9	34	47

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI Camdenton, Camden County	1	10:40 a.m.			0	0			Funnel aloft	
TEXAS Jefferson County Airport (12 miles east-northeast of)	1	11:36- 11:41 a.m.			0	0			Funnel aloft	
TEXAS Houston, Harris County	1	11:45 a.m.			0	0			Funnel aloft	
WASHINGTON Spokane, Spokane County	1	2 p.m.			0	0	2	1	Dust devil	Chimney and garage roof damaged when large dust devil developed in northwest section of Spokane.
SOUTH CAROLINA Charleston (20 miles northeast of), Charleston County	1	2:04 p.m.			0	0	1	1	Waterspout	
TEXAS Rule (3-1/2 miles south of), Haskell County	1	4:30 p.m.	3	*1			3	4	Wind and hail	Wind demolished garage on farm and damaged trees. Marble-sized hail caused 75 percent damage to cotton.
ARKANSAS Beebe (near), White County	1	4:38 p.m.			0	0			Funnel aloft	Reported by airplane pilot.
MISSOURI Fillmore (2 miles north- west of), Andrew County	1	5:50 p.m.			0	0			Funnel aloft	
OKLAHOMA Sequoyah County	1	Night						1	Electrical and rain	Lightning caused extensive structural damage to home in Muldrow, damaged TV set at Akins, and variable damage resulted to 4 homes in western part of County.
	1									Minor storms also reported at Camdenton and Fulton, Mo.; at Dustin, McAlester, and Okeene, Okla.; and at Johnson City, Tenn.
VIRGINIA Damascus area, Washington County	2	A.m.					5		Rain	Flash flooding created by continuing downpour on Straight Branch stream washed out much of 10-mile freshly surfaced section of Route 58. Considerable damage to Norfolk-Western Rail- road tracks.
MISSISSIPPI Indianola area, Sunflower County	2	2 p.m.			1		4	4	Electrical and rain	1 person killed by lightning; several build- ings damaged; tree limbs downed and powerlines severed; cotton damaged by attendant heavy rain.
ILLINOIS Mattoon, Coles County	2	3:30 p.m.			1	1			Electrical	2 fishermen took shelter under over-turned boat on lake shore and were struck by light- ning.
MISSISSIPPI Greenville (22 miles northeast of), Washington County	2	8:10 p.m.			0	0			Funnel aloft	
	2									Minor storms also reported at Artesia and Brooksville, Miss.; at Keota, Okla.; near Hecla, S. Dak.; and at Crossville and Red Boiling Springs, Tenn.
OREGON Southwestern and south- central portions	2-3	Afternoons -even- ings					4	5	Wind, hail, rain, and electrical	Series of violent thunderstorms accompanied in some cases by high winds, hail, and heavy rains struck at a number of points in south- west and south-central during afternoons and evenings of 2 days. Most concentrated dam- age in Talent area, near Medford. Winds up- rooted many fruit trees, blew off crops, un- roofed barns and other buildings. Hail and heavy rain added to damage to both fruit and field crops. Total of 40 to 50 small forest fires started by lightning, but none reached damaging proportions. Damage by wind, \$375,000; hail, \$12,000; rain, \$12,000; lightning, \$1,000. Storm moved eastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
WEST VIRGINIA Wood County	3	4-10 a.m.					5	1	Rain	Torrential thundershowers caused undermining of railroad tracks, permitting derailment of fast freight with resultant damage to trackage, rolling stock, and cargoes. At least 1 earth slide, partially blocking main highway, resulted from heavy rains.
TEXAS Cleburne (2-1/2 miles southwest of), Johnson County	3	4:25 a.m.	5	100	0	0	3		Tornado	Lifted 250-gallon gas tank three-fourths full, pulled cap off and gas out; badly damaged barn; signs and small objects scattered and sections of roofs removed. Tornado moved southwestward.
WEST VIRGINIA Roane, Cal- houn, Braxton, Kanawha, Clay, Nicholas, Fayette, and Greenbrier Counties	3	A.m.						1	Rain	Many earthslides and high waters from flash floods temporarily blocked streets and highways. 1 earth slide smashed into bedroom of home where children were sleeping. Many roadbeds and small bridges washed out.
TEXAS Johnson City, Blanco County	3	3 p.m.	5	500			4		Wind	Heavy damage to feed mill; house pushed from foundation and cut in half; other roofs damaged; big tree uprooted. Part of squall line. Storm moved southeastward.
TEXAS Waco, McLennan County	3	3-4 p.m.	3	*2		1	3		Wind	Widespread minor damage, mostly in southern and southeastern portions of city. 1 person cut by glass. Storm moved south-southeastward.
MICHIGAN Southeastern portion	3	3-9 p.m.					4	4	Wind, electrical, and hail	High winds downed trees and utility lines in several localities. Lightning caused minor damage. Hailstones up to 2 inches in diameter caused some property and crop damage near Jackson.
IDAHO Weiser to McCall, Wash- ington to Valley Counties	3	Afternoon							Wind, hail, rain, and electrical	Some hail and rain damage to crops in Weiser Valley. Heavy rain moved boulder onto Highway 95 near Riggins. Docks on Payette Lake at McCall damaged by wind. Lightning killed registered heifer on farm near Cascade.
TEXAS Temple area, Bell County	3	3:30- 4:30 p.m.	15	*15	0	0	4		Wind and funnel aloft	Considerable minor damage. Highlines blown down at Temple. 2 small fires started. Funnel aloft sighted 5 miles south of Temple. Storm moved southward.
TEXAS Temple (7 miles south of), Bell County	3	4-4:15 p.m.	1	50	0	0	2		Tornado	Outhouses blown about; some roof damage. Large piece of lumber blown through wall of house. Tornado moved southeastward.
FLORIDA Boynton and Delray Beaches, Palm Beach County	3	4 to 5 p.m.			0	0	3		Tornado and funnels aloft	At least 3 funnel clouds sighted moving eastward near Boynton and Delray Beaches, 1 touched ground.
VIRGINIA Waverly - Wakefield area, Sussex, County	3	6-9 p.m.					*4		Rain	Record-making heavy rain resulted in flash flooding that closed roads, flooded buildings, and damaged crops. Rainfall measured 6 inches.
MICHIGAN Tecumseh (near), Lena- wee County	3	6:30 p.m.	Short	17	0	0	1	1	Tornado	Small tornado snapped tops off 8 trees, narrowly missed farmhouse.
SOUTH DAKOTA Northwestern portion	3	Night				2		4	Electrical, rain, and hail	At Belle Fourche, 2 children playing near pond in rain rendered unconscious for 10 minutes. Several haystacks burned from Spearfish to Dupree. At one time, 9 prairie fires burning between Mud Butte and Dupree. Hail damaged crops in Perkins and Corson Counties. Storm moved northeastward.
	3									Minor storms also reported in Morgan County, Colo.; at Jackson, Miss.; and in Harrington area, Wash.
MINNESOTA Dakota County (central portion)	4	2 A.m.					4	1	Electrical and wind	2 barns struck by lightning and burned to ground. Several empty silos and trees blown over. Storm moved southeastward.
MINNESOTA Central portion	4	3 p.m.			0	0			Wind, rain, hail, electrical, and funnel aloft	Severe thunderstorms broke out near 4 p.m., from Perham to vicinity of Elbow Lake and moved across central Minnesota. Heaviest damage in Ottertail, Grant, Douglas, Morrison, Stearns, McLeod, and Hennepin Counties. Near Elbow Lake, heavy hail 1 to 2 inches in diameter reached

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MINNESOTA (Cont'd.)										depth of near 3 inches in isolated areas. Near Alexandria, strong wind ripped through cottage area, damaging several cottages. Lightning struck barn and burned it down. In Morrison County, near Bowlus, 4 barns blown down. St. Cloud Weather Bureau Airport Station recorded 2.30 inches of rain in 15-minute period, heaviest rain of record for such period. Total rainfall 3.12 inches in less than 2 hours. Many streets and basements flooded in St. Cloud, due to sewer backups. Peak winds 70 m.p.h. At Minneapolis-St. Paul, heavy rain flooded streets and peak winds 61 m.p.h. Funnel cloud aloft reported near Forest Lake. Heavy hail damage in Redwood Falls area, Redwood County, and northwest of Hutchinson, McLeod County. Storm moved east-southeastward.
MAINE, MASSACHUSETTS, and NEW HAMPSHIRE	4	Afternoon			1	2	5	3	Electrical, wind, hail and rain	Many reports of lightning damage. 1 person killed at Salem, N. H., and 2 boys injured and horse killed at Jefferson, N. H. Numerous homes hit, with some destroyed. Wind felled many limbs, trees, and utility lines, with hundreds of service outages. Wind picked up garage at Newfield, Maine, and smashed it upside down, while jagged disks of hail destroyed fruit and broke windows in that locality. Apples damaged by hail near Sanford, Maine. Wind overturned or damaged 30 boats at Houghs Neck, Mass. Heavy rains flooded some cellars and stalled street traffic in and near Boston.
KANSAS Cheyenne County	4	5-6 p.m.							Hail, wind, and rain	Storm struck about 5 p.m., over eastern and southern parts of county. Severe winds unroofed barn near Bird City, and caused tree and other minor damage. Some crop damage resulted from hail. Rains up to 6.00 inches halted traffic. Storm moved westward.
NEBRASKA Ord (south of), Valley County	4	Dusk	6	*1-2			2	4	Hail	Storm moved southeastward.
MINNESOTA Lucan (near), Redwood County	4	7:30 p.m.			1	2			Tornado (suspected)	Man killed when outbuilding, collapsed by wind, crushed him. 2 injured when portable grain elevator tipped over. Barn damaged, trees uprooted, and windows blown out. Tornado moved southeastward.
WISCONSIN Rusk and portions of adjacent counties	4	7:30 p.m.					3	4	Wind, rain, and hail	Storm moved eastward.
NEBRASKA Madison and vicinity, Madison County	4	8:30- 8:45 p.m.	Short	Narrow	0	0	3	2	Tornado	
IOWA Cerro Gordo, Floyd, and Mitchell Counties	4	11-12 p.m.					4	1	Wind and electrical	Damaged fairground structures and burned farm structures.
	4									Minor storms also reported at Burlington and Rocky Ford, Colo.; at Maryville, Mo.; and in Jones County, N. C.
IOWA Buena Vista and Calhoun Counties	5	5 p.m.	20	60	0	0	3	3	Tornado (suspected)	Damaged farm buildings and crops. Storm moved northeastward.
IOWA Humboldt County	5	5-6 p.m.	6	*1			1	5	Hail	Storm moved eastward.
NEBRASKA Colon (near), Saunders County	5	5:30 p.m.	Short	Narrow	0	0	3	1	Tornado	
NEBRASKA Wahoo to Nebraska City, Saunders to Otoe Counties	5	5:30- 6:30 p.m.	60	*8-10	0	0	4	5	Hail, wind, and tornado	Many homes damaged rather badly. Rainfall up to 5.60 inches at Ashland. Funnel cloud observed. Tornado near Louisville. Storm moved southeastward. Property damage by wind, crop damage by hail.
NEBRASKA Aurora (near), Hamilton County	5	7 p.m.			0	0	3	1	Tornado	Building on County Fair ground destroyed.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
NEBRASKA Douglas and vicinity, Otoe County	5	11 p.m.			0	0	5	3	Wind or tor- nado (sus- pected), and hail	Large barn blown down. Many windows broken. Property damage by wind, crop damage by hail.
CALIFORNIA San Bernardino County	5	Evening					3		Rain and electrical	Cloudburst piled up 8 inches of water on High- way 66 near Yermo, and flash flood covered same highway with rocks and mud west of Barstow. Lightning started 4 fires in timber near Big Bear Lake.
NEBRASKA York (5 miles east of), York County	5	Night			0	0	3	1	Wind or tor- nado (sus- pected)	Corn crib roof destroyed.
	5									Minor storms also reported in Cass and Pottawat- tami Counties, Iowa; at Hollis, Kans.; near Midland, Mich.; and near Beaver Crossing, Glad- stone, and Plattsmouth, Nebr.
	5-6									Minor storm reported near Pierce, Nebr.
IOWA Clinton and Jackson Counties	6	3 p.m.					3	4	Wind and hail	Utilities and crops damaged.
ILLINOIS Kane, Ogle, and DeKalb Counties	6	Afternoon	2	70	0	0	5		Tornado and hail	At Montgomery 1 or possibly 2, tornadoes caused extensive roof damage to newly completed cater- pillar tractor factory at 5:10 p.m. Also many trees downed. Hail reported in Rochelle-DeKalb area earlier. Storm moved southeastward.
INDIANA Rochester, Fulton County	6	Afternoon				1	1	1	Electrical	Youth struck by lightning.
MICHIGAN Southern portion	6	Afternoon			1	4	5	4	Wind and rain	High winds and heavy rains main source of damage. Streets and basements flooded in several cities. In Detroit flooding caused serious traffic jams. 50 homes damaged by wind near Monroe.
ARIZONA Ft. Huachuca (10 miles west of), Cochise County	6	4 p.m.			0	0			Funnel aloft	Funnel cloud remained aloft over desert.
NEBRASKA Greeley (north- east of), Greeley County	6	Late afternoon	5	*2			2	4	Hail	Hailstones size of marbles.
KANSAS Sumner and Sedgwick Counties	6	4:30-6 p.m.	4	*2					Hail, wind, and rain	Very heavy rain estimated at 7 to 10 inches fell over small area south of Belle Plaine. Severe winds first from northeast and then from south- west did some damage to trees and roofs about 4 miles southwest of town. Hail stripped corn and trees in area south of heavy rain. Wind at times almost of tornadic speed. Some damage to airplanes at McConnel Air Force Base near Wichita.
COLORADO Northeastern corner	6	5 p.m.					5	4	Hail	Hail size of door knobs struck town of Haxtun, causing heavy damage to roofs, signs, and win- dows. Cars dented. Some crops adjacent to town suffered some damage. Storm moved north- eastward.
SOUTH DAKOTA Davison, Han- son, and Hutchinson Counties	6	6-7 p.m.	35	*8				5	Hail and wind	Extended from Mitchell almost to Scotland. Storm moved south-southeastward.
TEXAS Alice (5 to 10 miles north- northeast of), Jim Wells County	6	6:40- 7:10 p.m.			0	0			Funnel aloft	
FLORIDA Orlando, Orange County	6	P.m.				1			Electrical	1 person injured by lightning.
OKLAHOMA Osage County	6	P.m.							Wind, rain, and electri- cal	Severe thunderstorm moved east-southeastward across Osage County. Strong winds damaged sign- boards, trees, utilities, TV antennas, etc. Lightning caused fire which destroyed 2 barns, 1 at Fairfax, and the other at Waynona. Heavy rains halted traffic.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS Cheyenne County	6	Evening							Wind	Severe winds estimated at 60 to 80 m.p.h., over western part of county resulted in many broken trees and limbs and some crops flattened.
MISSOURI Belton, Cass County	6	Evening					4		Rain	5 inches of rain fell, causing much local flooding and threatening Neff Lake dam. Many basements full of water.
NEBRASKA Gordon, Sheridan County	6	Night	25	*2			2	4	Hail	Storm moved southeastward from northwest of Gordon to Niobrara River.
	6									Minor storms also reported in Weld County, Colo.; at Calhoun, Ga.; near Scott and in Woodbine area, Kans.; at Maryville and Richmond, Mo.; and near Kearney, Nebr.
MINNESOTA Vernon Center (near), Blue Earth County	7	1:30 a.m.	12	*2			1	5	Hail	Hailstones 1/2 to 1/4 inch in diameter. Storm moved southeastward.
RHODE ISLAND Newport, New- port County	7	Early a.m.			16	24			Fog	Early morning collision of S.S. Gulfoil and S.S. Graham, 2 tankers, at mouth of Narragansett Bay blamed on very dense fog. With visibility reported as less than 100 feet, collision resulted in holocaust of fire from inflammable cargoes on both ships. Out of total crew of 50 men, there were 16 fatalities, all on 1 boat and 24 seriously injured from burns, etc. Both vessels badly gutted by fire, but intentions for salvage expressed by owners.
TEXAS Texas City (5 miles east of), Galveston County	7	11:50 a.m.			0	0			Waterspout	Reported by pilot. Lasted only a few seconds.
TEXAS Calallen, Nueces County	7	2 p.m.			0	0			Funnel aloft	
WISCONSIN Milwaukee, Milwaukee County	7	2:57 p.m.	1	100	0	4	4	1	Tornado and hail	3/4 inch hail. Tornado moved southeastward.
INDIANA Lagrange, Lagrange County	7	3 p.m.				1	1	1	Electrical	1 person struck by lightning when shelter hit.
OHIO Cleveland, Cuyahoga County	7	3 p.m.	20				5		Wind	Strong, apparently straight-line wind did considerable structural damage to homes in Cleveland area, particularly in Shaker Heights and Wickliffe; blew down trees and utility lines. Storm moved eastward.
CALIFORNIA Bridgeport, Mono County	7	Afternoon			1		3		Wind	Strong to gale-force wind capsized several small boats on Bridgeport Lake, drowning 1 person. Considerable damage to lakeside facilities. Storm moved northward.
ILLINOIS West-central area	7	Afternoon							Electrical, hail, wind, and rain	Numerous heavy thunderstorms occurred in area from Kewanee and Streator southward to approximately Belleville and Mt. Vernon.
INDIANA La Porte, La Porte County	7	Afternoon					4	1	Wind, electri- cal, and rain	Several buildings damaged by lightning and falling trees. Rain flooded basements. Damages by wind \$5,000, by lightning \$6,000, by rain \$2,000.
INDIANA Marshall County	7	Afternoon					4	1	Electrical	2 barns and 2 homes damaged by lightning and resulting fire.
ILLINOIS Adams County	7	3:20 p.m.				11			Electrical	10 persons attending company picnic northeast of Quincy injured by lightning while standing under tree. 1 person struck at Mendon.
ILLINOIS Chicago, Cook County	7	4 p.m.			2		4		Electrical and hail	2 boys killed by lightning while standing under trees in separate locations. Storm heaviest on far south side. Other lightning and some hail damage.
MICHIGAN Central and southeastern portions	7	Afternoon -evening					5	4	Rain, electri- cal, and wind	Heavy rains flooded streets and basements in Saginaw and several Detroit suburbs. Lightning killed 9 head of cattle near Gladwin. High winds damaged some buildings and many trees.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS Victoria (25 miles south of), Refugio County	7	4:50 p.m.			0	0			Funnel aloft	
INDIANA Gary, Lake County	7	5:30 p.m.					4	3	Wind and hail	2 cranes destroyed and utility lines torn down. Hail quite general and damaged gardens.
OHIO London, Madison County	7	5:30 p.m.	10	100			5		Wind	Storm, localized in nature, and probably straight-line wind blew down many trees, disrupted utilities, caused minor damage to homes, and major damage to Church. Storm moved eastward.
OHIO Highland County	7	6 p.m.	5	1760			4		Wind	Storm, which had some characteristics of tornado, blew down some 100 trees, damaged several farm buildings and unroofed house about 3 miles south of New Market. Storm moved eastward.
MISSOURI Mexico, Audrain County	7	11 p.m.			0	0			Funnel aloft	
MASSACHUSETTS East-central and north- eastern por- tions	7	Evening				2	4	2	Electrical, wind, rain, and hail	1 person stunned by lightning at Shrewsbury. Lightning struck a dozen or more homes in suburbs north and west of Boston and caused utility outages. 1 person injured in automobile accident caused by lightning at Somerville. Winds in several localities felled limbs and trees, causing other power and phone failures. 5 to 10 thousand homes affected, with Arlington, Winchester, Bedford, and Watertown areas worst hit. Soil-washing and street-flooding rains in Worcester area. Traffic halted there and also in Newton. Large hail at Salem, but no damage reported. Unusual feature was killing of 300 tomato plants by lightning at Framingham.
PENNSYLVANIA Erie and Warren Counties	7	Evening					3		Hail and electrical	Heavy hail in Corry area. Ice as deep as 6 inches in some sections. 2 homes struck by lightning. Storm moved southeastward.
PENNSYLVANIA Central counties	7	Evening					4	1	Electrical	Barn destroyed by lightning-induced fire.
PENNSYLVANIA Southwestern area	7	Night					4	1	Electrical and rain	Several barns destroyed by lightning-induced fires. Power failures and flooded basements common.
OHIO Northern portion	7								Rain and wind	Local flooding from up to 3 inches of rain in some areas. Among places hit were portions of Lorain and Geauga Counties.
OHIO Clermont County	7								Rain	Serious flooding which was aggravated by saturated condition of soils from previous rains.
	7									Minor storms also reported in San Bernardino County, Calif.; at Arlington and Karval, Colo.; at Ligonier and Terre Haute, Ind.; at scattered points in Iowa; at Belgrade Lakes, Maine; at Jackson, Mo.; in Graham County, N. C.; and at West Bend, Wis.
MISSOURI Jefferson Barracks, St. Louis County	8	1:50 a.m.					4		Electrical	Lightning set building on fire.
OKLAHOMA Ramona, Wash- ington County	8	3:20 a.m.					5	1	Electrical	Lightning caused fire which destroyed large school.
FLORIDA Volusia County	8	9-10 a.m.			0	0			Waterspouts	Ship captain reported 3 waterspouts 17 miles east-northeast of Daytona Beach.
MISSOURI Vandalia, Audrain County	8	1:45 p.m.			0	0			Funnel aloft	
TENNESSEE Mooresburg (near), Hawkins County	8	2 p.m.			1		1	1	Electrical	Lightning struck and killed man, working on lime spreader.
MAINE Jefferson, Lincoln County	8	3:30 p.m.	2	Narrow	0	0	2	1	Waterspout, rain, and hail	Funnel cloud, accompanied by rain and small hail, but with no thunder, crossed Big Bay of Damariscotta Lake, raising water about 4 feet and spray about 80 feet. Dissipated soon after

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
MAINE (Cont'd.)										hitting shore, with minor damage to cottage and automobile. 5 trees uprooted and 6 others damaged. 2 trees were over 3 feet in diameter. Storm moved northeastward.
WEST VIRGINIA Kanawha, Clay, and Braxton Counties	8	Afternoon			2			1	Electrical and rain	Roads washed out and undermined and bridges washed away by heavy rains and flash floods. Gas, electricity, water, and telephone services disrupted. Highways closed by earth slides and high water. 1 death from drowning, the other from lightning strike.
SOUTH DAKOTA Aberdeen (15 miles north- east of), Brown County	8	4 p.m.			0	0			Funnels aloft	2 funnels aloft sighted.
NORTH CAROLINA Transylvania County	8	5 p.m.					3	4	Hail	Corn and tobacco damaged in fields. Some roofs damaged.
SOUTH DAKOTA Tripp County	8	5-7 p.m.				1	3	5	Electrical and hail	Farm wife living 19 miles northwest of Winner knocked to floor and burned when lightning struck telephone line while she was talking on phone. 1/2 to 3/4 inch hail ruined crops in area from 12 miles northwest to 4 miles west of Winner. In deepest spots, hail accumulated 6 inches deep.
MINNESOTA Clay, Polk, Mahnomen, Becker, Traverse, Big Stone, and Grant Counties	8	5:30 p.m.					3	4	Hail and rain	Hail 1/3 to 1/2 inch in diameter and rain fell between Glyndon and Hawley and north of this line. Reported damage due to hail \$1,000 to property and \$3,000 to field crops; due to rain, field crops \$20,000. Some minor hail and rain damage reported in Polk, Mahnomen, Becker, Traverse, Big Stone, and Grant Counties. Storm moved southeastward.
MASSACHUSETTS Greater Boston, Suffolk County	8	6 p.m.				2	4	1	Wind, rain, electrical, and hail	Winds approached hurricane force in gusts, felling numerous trees and wires. 4 automobiles crushed by falling trees. Man and child severely injured in Revere, when wind blew ladder from building. Streets and cellars in some areas flooded. Lightning struck several homes with minor damage. Power service to about 2,500 homes cut by storm. Hail accompanied storm, but did no damage. 5 boats capsized on Charles River and other boats torn from moorings in coastal harbors.
LOUISIANA Lake Salvador, Jefferson Parish	8	6:44 p.m.			0	0	1	1	Waterspouts	1 fully developed and 1 partially developed sighted by pilot.
WISCONSIN Bayfield County	8	7 p.m.					4	3	Rain, wind, and electri- cal	Losses from flooding. Storm moved eastward.
FLORIDA Largo, Pinellas County	8	P.m.							Electrical	Lightning started fire in furniture manufacturing building and destroyed nearly two-thirds of building. No damage figures available.
SOUTH DAKOTA Northeastern portion	8							4	Hail	Sprinkling of crop hail claims from southwestern Roberts County and adjacent areas. Concentrated area of claims in Kingsbury County, between Oldham and Arlington. Hailstones apparently small.
	8									Minor storms also reported at Baton Rouge, La.; at Pittston and Poland, Maine, at Bethel, in Merrymeeting Lake area, at Pittsford, and Rochester, N. H.; at Goldsboro, N. C.; at Bristow, Drumright, McAlester, Nelson, and Okemah, Okla.; in Sullivan County, Tenn.; and Bristol and Lovingston areas, Va.
OKLAHOMA Springer, Carter County	9	2:40 a.m.						1	Wind and electrical	Wind gust lifted light plane over airport building and crashed it to ground, causing \$1,000 damage. Lightning caused fire which burned hay barn. Storm moved southeastward.
TEXAS Jefferson County Airport (8 miles south of)	9	10:05 a.m.			0	0			Funnel aloft	
LOUISIANA Kenner (15 miles north- east of), Jefferson Parish	9	1:10 p.m.			0	0			Funnel aloft	

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NORTH DAKOTA Jamestown (20 miles north of), Stutsman County	9	3:35 p.m.							Wind and rain	Gusts to 60 m.p.h. Branches torn off trees. Very heavy rain.
NORTH DAKOTA Fargo (30 miles north- west of), Cass County	9	Late afternoon			0	0	3	4	Tornado and hail	Tornado lifted machine shed and twisted garage on 1 farm and several farmers received heavy damage loss by hail in same storm. Storm moved eastward.
NORTH DAKOTA Fargo (10 miles north of), Cass County	9	5:06 p.m.			0	0			Tornado	Tornado moved eastward.
MICHIGAN Ottawa Lake, Iron County	9	6 p.m.	Short	30	0	0	1	1	Tornado	Tornado cut short path through forested area.
MINNESOTA Norman, Clay, and Mahnomon Counties	9	6 p.m.	10	*4					Hail, wind, and rain	Hail, moth-ball size, broke thousands of windows in homes and public buildings in Twin Valley area. Wind-driven rain soaked many interiors. Many trees and TV antennas downed. Crop dam- age rather extensive. Hail also reported to have fallen in Clay and Mahnomon Counties. Storm moved northeastward.
WISCONSIN Armstrong Creek, Florence County	9	10 p.m.			2		3	1	Wind, rain, and electri- cal	2 persons killed in airplane crash during storm.
FLORIDA Lake Placid, Highlands County	9	P.m.				2			Electrical	2 persons injured, 1 hospitalized, by lightning.
MICHIGAN Upper portion	9	Evening					4	1	Wind, rain, and electri- cal	High winds damaged buildings and downed trees and utility lines. Heavy rains caused street damage in Marquette. Lightning started forest fire in Schoolcraft County.
	9									Minor storms also reported at Russelville, Ill.; at Caribou, Maine; at Sturgeon and West Plains, Mo.; at Doyle, Edmond, and Oklahoma City, Okla.; in Blue Mountains, Wash.; and in Oneida and Vilas Counties, Wis.
TEXAS Galveston Bay, Galveston County	10	9:30 a.m.			1				Electrical	Boat struck by lightning out of sudden light squall; man killed.
TEXAS Orange (2 miles south of), Orange County	10	10:35 a.m.			0	0			Funnel aloft	
LOUISIANA Kenner (20 miles south- east of), Jefferson Parish	10	2:20 p.m.			0	0			Funnel aloft	
NEW YORK Southeastern counties and Long Island	10	Late after- noon- evening			3	sev- eral	4	2	Electrical, rain, and wind	Several injuries due to car accidents, 1 boy killed in head-on collision near Southampton. Lightning fire damage in excess of \$10,000. 15,000 to 20,000 homes without power for as much as 10 hours. Severe thunderstorms, heavy rain, and high winds with gusts to 67 m.p.h. Sail boats and airplanes upset; trees downed. Man killed at Lake Success when struck by high tension wire ripped loose by wind. Woman kill- ed in Bronx when revolving door, torn loose by wind, fell on her.
MINNESOTA Sebek (5 miles east of), Wadena County	10	6 p.m.			0	0			Funnel aloft	
MINNESOTA Redwood, Lincoln, Lyons, and Murray Counties	10	6 p.m.	5	*1			1		Hail and rain	Centered over Gales and Westline Townships. Damage to corn and soybeans reported from 50 to 100 percent. Unofficial 1-1/2 inches of rain fell in 15 minutes. Light hail also fell over parts of Lincoln, Lyons, and Murray Coun- ties. Storm moved eastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Lake, and McCook Counties	10	6-7 p.m.	30	*12			4	5	Hail, wind, electrical, and rain	Hail 1-1/2 inches in diameter. Worst damage just west of line from Madison to Montrose. Near Orland, 2 barns and large garage blown down, and store unroofed. 4-1/2 to 5 inches of rain near Winfred. Storm moved southward.
SOUTH DAKOTA Davison and Hutchinson Counties	10	6:30-8 p.m.				2	4	4	Hail and wind	Severe hail damage over small area surrounding Ethan. Lesser damage from 1-1/2 inch stones near Mitchell. Minor damage near Freeman and Scotland. Wind damage to old farm buildings. 2 boys injured when feed rack blew over on them as they sought shelter. Storm moved southeastward.
TENNESSEE Norris (near), Anderson County	10	7:30 p.m.				4		1	Electrical	Lightning struck church, injuring 4 persons.
ARIZONA Phoenix, Mari- copa County	10	9 p.m.					4	1	Wind	
KENTUCKY Hancock County	10	P.m.					4		Electrical and wind	Fire caused by lightning destroyed building and its contents. Winds tore down trees and blew down wires. Most damage by lightning.
MINNESOTA Rochester (near), Olm- sted County	10	P.m.			0	0			Funnels aloft	2 funnel clouds reported. One 15 miles south-southeast of Rochester at 2:35 p.m., by pilot. Second funnel observed 20 miles south-southeast of Rochester at 7:20 p.m.
TENNESSEE Trenton, Gib- son County	10	P.m.				1		1	Electrical	Lightning broke a powerline. Man severely burned upon touching metal fence in contact with downed line.
WASHINGTON Cascade Mountains and east	10								Electrical	A number of forest fires started by lightning in Cascades and other timber areas in east. Several grass fires started on range land.
	10									Minor storms also reported at Douglas, Mesa, and Tucson, Ariz.; at Greenwich, Conn.; at Lewiston, Idaho; at Fredonia, Kans.; at Ada, Okla.; and at Donelson and Martin, Tenn.
OREGON Eastern portion	10-11	Afternoons -evenings					4	4	Electrical, hail, and rain	Storm occurred at many scattered points east of Cascade Mountains. In Wallowa Valley of extreme northeast, heavy rain and some hail caused fairly severe damage over small area (less than 150 acres). Lightning-set fires in southeast and east-central burned over nearly 12,000 acres of range land. Scores of small forest fires started, but all brought under control with little resulting timber damage. Damage by hail, \$5,000; rain, \$10,000; lightning, \$45,000.
FLORIDA Miami, Dade County	11	11 a.m.			0	0			Waterspout	Waterspout seen 10 miles south of Miami.
WYOMING Cheyenne (20 miles east- northeast of), Laramie County	11	2 p.m.			0	0			Funnel aloft	
NEBRASKA Upland (north and northeast of), Franklin County	11	Afternoon	10	*2			4	5	Hail	Hailstones up to 4 inches in diameter. Ground covered several inches deep in center of storm. Storm moved southeastward.
NEBRASKA Hayes Center (west and north of), Hayes County	11	Afternoon					2		Hail	Considerable damage to corn.
VIRGINIA Buckingham, Richmond, Roanoke, and Campbell Counties	11	Afternoon -evening			0	0	*4		Electrical, wind, and tornado (suspected)	\$25,000 lightning fire to hay barn at Roanoke. Considerable damage from lightning to telephone company building at Warsaw. Trees damaged, 40 chickens killed in Brookneal area. Possible tornado cut swath near Buckingham Courthouse. Large oak trees downed, windows broken, roofing torn off, tops of several trees twisted off, and hay and cattle barn blown down.
SOUTH DAKOTA Hyde and Hand Counties	11	4-7 p.m.	50	*10- 15			4	4	Wind, and hail	High, gusty winds moved from northwestern Hyde County to southeastern Hand County. Small hail covered ground in 1 area. Over 30 farms reported minor damage. Storm moved southeastward.

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AUGUST 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
NORTH DAKOTA Grand Forks (2 miles south of), Grand Forks County	11	4:06 p.m.			0	2	4	4	Tornado and wind	Thunderstorm, sustained southwest wind of 56 to 66 m.p.h. Peak gusts to 88 m.p.h., at Grand Forks. Tornado destroyed several buildings south of Grand Forks; also a number of buildings on 2 farms, including 2 barns and 2 new silos. Many limbs broken on trees in Grand Forks and wind knocked down part of outdoor theater screen hood. Combine carried 100 feet. Wrecked barn found 1/2 mile from farmstead and truck moved 50 feet. 2 men injured in car wreck at Grand Forks when visibility dropped to zero. Storm moved eastward.
INDIANA Wolcottville, Lagrange County	11	4:18 p.m.			0	0			Funnels aloft	Funnels sighted moving eastward.
INDIANA Mooreland, Henry County	11	4:30 p.m.					4	1	Wind	Buildings and equipment, including tents and ferris wheel, damaged at fair grounds. Automobile and part of building crushed.
NEBRASKA Greeley County (western portion)	11	6 p.m.	25				2	4	Hail	Damage occurred in streaks. Storm moved south-eastward.
NORTH CAROLINA Alamance County	11	6 p.m.					4		Wind and rain	Windstorm in Burlington reported as "worse than Hurricane Hazel". Extensive minor damage to trees, roofs, antennas, power and telephone facilities. 1 garage demolished and 5 trucks housed therein dented. Heavy rain caused gullies and washouts.
MINNESOTA Moorhead (6-1/2 miles south-south- east of), Clay County	11	7:25 p.m.	3/4	100	0	5	4	2	Tornado and hail	Funnel cloud observed reaching ground. New trailer home flipped over and destroyed, also 60-foot long barn and other outbuildings. Farm machinery twisted beyond repair. Tightly closed quonset shed exploded and demolished. Light hail fell; damage light. Storm moved east-northeastward.
ALABAMA Calhoun County	11	Early evening			2	11	1	1	Electrical and rain	Lightning hit in crowd at ball game at Oxford. Victims had gathered under tree to get out of rain.
KENTUCKY Bourbon County	11	P.m.					3	4	Wind and hail	Residence damaged by falling trees. Utility services disrupted by falling trees and wires. Tobacco crops riddled by hailstones, and wind and hail pounded some crops into ground.
KENTUCKY Kenton County	11	P.m.				2	3		Electrical	2 persons struck by lightning, and a number of buildings suffered minor damage.
MINNESOTA East Grand Forks, Polk County	11	P.m.				1			Electrical and wind	1 person struck and injured by lightning during 15-minute severe thunderstorm. Winds officially recorded to 92 m.p.h., at Grand Forks. Some light hail. Storm moved eastward.
FLORIDA Boca Raton, Palm Beach County	11				0	0			Waterspout	Waterspout reported by pilot 5 miles east of Boca Raton.
	11									Minor storms also reported near Lafayette, at Lakewood, and in De Kalb County Ala.; at Nogales, Ariz.; at Parma, Idaho; in Boyle County, Ky.; at Kahoka, Mo.; near Arcadia and Maywood, Nebr.; at Smoaks, S. C.; and in Bethel community, at Knoxville, Memphis, Old Hickory, and Savannah, Tenn.
NORTH CAROLINA Sampson County	12	2:30 p.m.					4	4	Wind and rain	Full-grown tobacco leaves torn off stalks in large quantities. Large tobacco packhouse unroofed and contents damaged by heavy rain.
TEXAS Garland-Wylie Park area, Dallas County	12	2:30-2:40 p.m.	3	300	0	0	3		Tornado	Park concession building and house trailer damaged. Wind estimated 50 to 60 m.p.h. Tornado moved eastward.
NEW JERSEY Burlington County	12	Afternoon					4		Rain, wind, and electrical	Highways washed out, trees blown down, and cellars flooded in Mt. Holly, Burlington, Riverside, and Cinnaminson. 3 homes and store struck by lightning. Underpasses flooded in several locations, with numerous automobiles marooned, some with water up to windshields. Electrical power out at Fort Dix for about 2 hours. 3 tractor-trailers jackknifed on slippery highway in Edgewater Park, tying up traffic, but causing no injuries.
PENNSYLVANIA Southeastern Counties	12	Afternoon					4		Electrical, wind, and hail	Several homes fired by lightning. Trees downed by high winds. Some damage to corn crop. Storm moved eastward.

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					Killed	Injured	Property (exclusive of crops)	Crops		
TEXAS San Angelo, Tom Green County	12	Afternoon					3		Wind	Winds to 75 m.p.h., damaged jeeps, truck, tent, and radio antennas at Texas National Guard Armory. Storm moved southeastward.
LOUISIANA Lake Pont- chartrain (south shore), Jefferson and Orleans Parishes	12	3:30-4 p.m.					3	1	Wind	Thundersquall developed over Lake Pontchartrain and moved southeastward over metropolitan New Orleans, upsetting boats, yachts, etc.; winds recorded at 60 m.p.h., on causeway.
IOWA Eastern por- tion	12	Afternoon -evening					4	3	Wind, and rain	Buildings, utilities, and crops damaged.
PENNSYLVANIA Northwestern counties	12	Afternoon -night			1	1	4		Electrical and rain	Greenville area hard hit. Woman killed in fall on farm attributed to storm. Another person injured by collapse of water-logged wall. Barn destroyed by lightning-induced fire. Light- ning also killed several cattle. Storm moved southeastward.
MONTANA Laurel, Yellow- stone County	12	4:45 p.m.	1/2	20	0	1	3	1	Tornado	Some damage to trees and gardens. Man thrown to ground, receiving minor injuries. Tornado moved southwestward.
TEXAS Clifton, Bosque County	12	4:45 p.m.	5	500			4		Wind and rain	Church wrecked by strong, gusty winds, several smaller buildings unroofed, and several trees uprooted. 1-1/2 inches of rainfall in short time. Storm moved southeastward.
TEXAS Bonham (5 miles south of), Fannin County	12	Late Afternoon	1/2	Narrow	0	0	2	3	Tornado, hail, and rain	Wrecked barn and henhouse, then skipped 100 yards to damage house. Hail and heavy rain damaged cotton.
TEXAS Terrell, Kauf- man County	12	Late afternoon				2	4		Wind, electri- cal, and rain	Lightning struck truck during storm; 2 occupants hospitalized for shock. Lumber company instal- lations blown short distance; top blown off 2 warehouses; airport hangar roof damaged. After hard, straight wind struck city, it reversed course and returned with sudden torrent of rain.
TEXAS Lavon, Collin County	12	Late afternoon					4		Wind	Partly unroofed cafe, overturned house trailer, and sank several small boats.
TEXAS Gatesville (east of), Coryell County	12	8 p.m.			0	0			Funnels aloft	3 funnels sighted.
PENNSYLVANIA Chambersburg, Franklin County	12	9 p.m.				9	5	1	Electrical	Large barn and garage fired by lightning. 9 firemen injured. Storm moved eastward.
MONTANA Volborg, Custer County	12	9:30 p.m.	10	*5			1	4	Hail, wind, and rain	\$10,000 crop damage from wind and \$10,000 from rain. Area of storm 4 miles north to 1 mile south. Wheat, oats, and grass land damaged. Storm moved southeastward.
MARYLAND Baltimore	12	9:45-10 p.m.				2	4		Electrical	In Parkville district, shortly before 10 p.m., lightning caused 2-alarm fire which injured 2 persons. Lightning apparently hit electric pole and traveled along electric wires into an electric and gas meter. Electric meter ex- ploded instantly, setting fire to house while gas meter melted, causing house to fill with fumes.
MICHIGAN Flint (near), Genesee County	12	11 P.m.					4	1	Electrical	Barn and contents destroyed by lightning-set fire.
TEXAS Ft. Worth suburb, Tar- rant County	12	Early evening					4		Wind	Partly unroofed house, snapped tree limbs, ripped away awnings, and tore down fences. Wind estimated to 75 m.p.h.
ARIZONA Salt River Canyon	12	Evening					5	1	Rain, wind, and electri- cal	Water damage to highway under construction.
MISSISSIPPI Lauderdale County	12				2				Electrical	2 persons killed by lightning.
	12									Minor storms also reported in Mobile and Owassa areas, Ala.; at Casa Grande and Tucson, Ariz.; in Lewes-Milton area, Del.; near Barnes, Kans.;

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					Killed	Injured	Property (exclusive of crops)	Crops		
	12									Minor storms also reported in Bourbon County, Ky.; at Ash Grove, De Soto, and Mt. View, Mo.; near Roundup, Mont.; at Oakdale, O'Neill, and Tilden, Nebr.; and near Miami, Okla.;
NEBRASKA Osmond (south and east of), Pierce County	13	5 a.m.					2	4	Hail	
ARIZONA Pinal County (southern portion)	13	Early evening							Wind, rain, and electri- cal	Wind damage to property and crops; rain and lightning damage to utilities.
NORTH CAROLINA Buncombe and Person Counties	13	1-4 p.m.						4	Hail	Tobacco damaged in fields.
MASSACHUSETTS Franklin County	13	2:30 p.m.	10	50- 500	0	0	3	1	Wind or tor- nado (sus- pected), hail, rain, and electrical	Severe storm in parts of East Charlemont, Buckland, and Shelburne Falls, reported by many locally as small tornado. 1 reported to have seen funnel. No verification to date direct from this witness. Many trees downed, utilities disrupted. Automobile crushed by falling tree at Buckland. Hail, mostly less than 1/2 inch size, caused minor crop damage. Little damage from lightning or accompanying torrential rain. Storm moved eastward.
MAINE Paris (near), Oxford County	13	3 p.m.	10	880			3	4	Hail, rain, and electri- cal	Hail up to 2-1/4 inch size severely damaged apples in 2 orchards, some peaches, and 15 acres of market gardens. Hail somewhat disk-shaped. Minor damage from lightning and washing rains. Some hail damage to buildings.
IDAHO Valley and Twin Falls Counties	13	Afternoon				1			Electrical and wind	Woman badly burned by lightning while fishing from boat on Cascade Reservoir; 2 companions unhurt. 2 automobiles badly smashed by large tree felled by wind near Buhl at 4:40 p.m.
PENNSYLVANIA South-central counties	13	Afternoon			4		4	1	Rain	4 persons lost their lives near Arendtsville when rain-swollen stream swept them off tractor during flash flood. Several industrial buildings flooded.
TEXAS Fort Worth Airport (20 miles west of), Tarrant County	13	3:15 p.m.			0	0			Funnel aloft	Lasted 1 minute.
NEBRASKA Platte Center (4 miles southeast of), Platte County	13	4 p.m.			1		1	1	Electrical	Man on tractor killed by lightning.
TEXAS Victoria to Pt. Lavaca area, Victoria and Calhoun Counties	13	4-4:30 p.m.	50	*30			4	5	Wind	Blew down 10-car garage; broke plate-glass windows; spread sparks from city dump to start several grass fires; damaged cotton crop; "literally pulled much cotton from the burr, scattering it around the fields." Blew cotton from trailers at gins, scattering it. At Victoria Weather Bureau, maximum wind speed 42 m.p.h., with peak gust at 4:10 p.m., 54 m.p.h. Car blown against tree; trees and TV antennas downed. Storm moved west-southwestward.
NEBRASKA Farnam-Stock- ville area, Dawson and Frontier Counties	13	4:15 p.m.		Narrow	0	0	4	1	Tornado	
NEBRASKA Trenton (south of), Hitchcock County	13	4:30-5 p.m.	Short	Narrow	0	0	3	1	Tornado	
NEBRASKA Dawson and Phelps Counties	13	5 p.m.	35	*3			3	8	Hail and wind	Storm moved southeastward from north-central Dawson County to Loomis, Phelps County.
OKLAHOMA Hollister (3 miles south of), Tillman County	13	5:30 p.m.	2	*1			2	4	Hail and wind	Hailstorm with stones up to 1 inch in diameter destroyed crops and caused other minor damage. Storm moved southwestward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
SOUTH DAKOTA Roberts and Grant Counties	13	5:30-6:15 p.m.	15	*6	0	0		4	Hail, wind, and waterspout	Corn stripped by hail. Unconfirmed report of baseball-sized stones. Waterspout over Big Stone Lake opposite Point Comfort. Storm moved east-southeastward.
MINNESOTA Alexandria (near), Doug- las County	13	6 p.m.			0	0			Funnels aloft and hail	Funnel aloft sighted approximately 65 miles southwest of Alexandria at 5:45 p.m. Another funnel sighted 15 miles south-southwest of Alexandria at 6:10 p.m. Hail 1-3/4 inches in diameter fell at Alexandria at 6:05 p.m. Ex- tent of hail damage not reported. Storm moved northeastward.
SOUTH DAKOTA Codington, Deuel, and Brookings Counties	13	6-8:45 p.m.	75	*3-9			3	5	Hail	Storm moved southeastward in straight line from several miles west of South Shore to Minnesota border east of Brookings. Largest hailstones 2 inches in diameter.
SOUTH DAKOTA Sioux Falls (35 miles north-north- east of), Moody County	13	8:40 p.m.			0	0			Funnel aloft	
MINNESOTA Ortonville and vicinity, Big Stone County	13	P.m.							Hail and wind	10-minute storm with some hailstones described as nearly size of baseballs. Corn and soybeans stripped. Trees uprooted, disrupting utility services. Storm moved east-southeastward.
	13									Minor storms also reported in Los Angeles, Orange, Riverside, and San Bernardino Counties, Calif.; at Amherst, Northampton, and Quincy, Mass.; near Holdrege and Ord, Nebr.; and at Elizabethton, Tenn.
CONNECTICUT and RHODE ISLAND	13-15						4	1	Electrical, wind, and rain	Persistent unstable air produced destructive thunderstorms in parts of 2 states on each of 3 dates with most activity on afternoon of 15th. Barn, including contents of hay, some implements, and a heifer, destroyed by light- ning-caused fire at Thompson, Conn., on 13th, with loss set at \$5,000. Lightning bolt kill- ed 8 cattle at Columbia, Conn., on 15th, with loss set at \$3,200. A number of houses, 2 schools, and factory struck by lightning in central Connecticut and in Bristol, R. I., but damage in each case minor. High winds toppled trees onto automobiles at Winsted and Cheshire, Conn., with total damage about \$1,000. Winds also destroyed canvas canopy in Winsted cemetery for a \$75 loss. Trans- former struck by bolt at Waterbury, Conn., severing power to 15,000 metropolitan cus- tomers on 13th, while power failures widespread in central Connecticut on 15th. Short downpour of 0.90 inch of rain flooded low-lying streets and stalled automobiles at Ansonia, Conn., on 15th.
TEXAS Houston and Galveston, Harris and Galveston Counties	14	11 a.m.- 2 p.m.	50	*40	1		5		Wind and rain	Gusts to 59 m.p.h. Over 1 inch of rainfall in 30 minutes in some areas. Temperatures dropped 16° in little over 1 hour. Wind gust snapped limb from tree, limb crashed onto laborer be- neath, killed him. Many traffic accidents, 5 or 6 fishermen's boats disabled. In Gal- veston, visibility cut to 1/2 block. At Sea- brook, 3-foot tidal wave washed into fishing camps. Storm moved westward.
PENNSYLVANIA Beaver and Indiana Counties	14	Afternoon					4	1	Electrical	Several barns fired by lightning, destroying stock and machinery. Storm moved eastward.
OHIO Ashley, Delaware County	14	4 p.m.			0	0	3		Tornado (suspected)	Very localized storm moving eastward 2 miles east of Ashley tore down utility lines, dam- aged house and garage roofs, and blew down several trees. 20-inch diameter maple tree was twisted off at its roots and deposited short distance away.
TEXAS Crystal City, Zavaldia County	14	5:20-6:40 p.m.					4		Wind and rain	Wind from northeast suddenly changed to south- east. Rain 1.10 inches, mostly during first 20 minutes. Long storage shed of timber and corrugated metal torn up and scattered; 13 phone poles, several antennas, and tree branches downed.
MINNESOTA Nobles, Murray, Jackson, Mar- tin, Blue Earth, Le Sueur, and Waseca Counties	14	6:15 p.m.							Hail and rain	Severe thunderstorms throughout area from 6:15 to 10 p.m. Hail fell on many occasions with average size 1 inch in diameter. Hardest hit was Reading and vicinity, Nobles County,

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
MINNESOTA (Cont'd.)										where hailstones 1 1/2 inches in circumference. 3 separate hailstorms observed here at 6:30 p.m., 7:30 p.m., and 9:30 p.m. Many localities reported golf-ball size hail. Crops laid low and stripped, much poultry killed or crippled, hundreds of cars dented, and many windows broken. Accompanied rainfall averaged generally 3/4 inch to unofficial 2 inches at Lismore, Nobles County. Storm moved eastward.
MASSACHUSETTS Northampton, Hampshire County	14	6:30 p.m.	1	Narrow	0	0	5	1	Tornado and hail	Funnel not well developed, but rotating black clouds seen. Hangar at airport destroyed. Falling tree damaged a truck. Hail up to over 1-inch size fell. Storm moved north-northeastward.
NEBRASKA Comstock to near Kearney, Custer to Buffalo County	14	9-9:30 p.m.	55	*3-4			4	6	Hail and wind	Hailstones 1/2 inch in diameter to size of baseballs. Ground covered. Property damage by wind. Crop damage \$100,000 by wind; \$1,000,000 by hail. Storm moved southward.
INDIANA Huntington (near), Hunt- ington County	14	9:30 p.m.					4	1	Electrical	Barn burned to ground after being struck by lightning.
NEBRASKA Wood River (north of), Hall County	14	9:30- 10:30 p.m.	3	*2			3	5	Hail	Hailstones 3/4 to 2 inches in diameter. Storm moved northwestward.
NEBRASKA Hildreth-Up- land area, Franklin County	14	10-10:15 p.m.						4	Hail	Considerable property damage.
FLORIDA Bradenton, Manatee County	14	P.m.			0	1	4		Wind and electrical	Heavy thunderstorm with high winds unroofed business establishment. One person injured by lightning.
MASSACHUSETTS NEW HAMPSHIRE, and VERMONT	14	Evening					4	3	Electrical, wind, hail, and rain	Lightning and wind caused widely scattered local damage. Trees and utility lines downed, interrupting services in many communities. Some direct lightning damage to powerlines and transformers; 1 generating station damaged. 2 homes fired by lightning at Charlestown, N. H., where heavy rains flooded and damaged school. Barn burned at Greenland, N. H. Automobile crushed by falling tree in Exeter, N. H., area. Minor crop damage from hail and wind; corn flattened in some localities, a little tobacco ripped by hail in Massachusetts. Hail up to 3/4-inch size at Rockingham, Vt.
MICHIGAN Berrien and Cass Counties	14	Evening					4	4	Wind, electri- cal, and hail	Winds damaged many homes and downed utility lines. 2 homes and a barn burned after being struck by lightning. Hail caused some crop damage.
IOWA Eastern portion	14	Late evening					5	4	Wind, rain, hail, and electrical	Buildings, utilities, and crops damaged.
CALIFORNIA San Bernardino County (west- ern portion)	14				1	1	3		Electrical and hail	Forest Ranger killed by lightning at Green Valley Lake, near Lake Arrowhead. Companion seriously injured. Lightning started brush fire near Cajon Pass, and 2 more southeast of Banning. Camp Angelus-Forest Home road closed by mud slide. Hail damaged apple orchards at Oak Glen.
SOUTH DAKOTA Union, Butte, and Gregory Counties	14				1	1			Electrical	At Beresford, boy sitting on bicycle near tree killed by lightning. Another standing 8 feet away stunned. Same day, lightning caused minor damage to house in Belle Fourche, and fired haystack in Gregory County.
	14									Minor storms also reported at Benson, Phoenix, and Tombstone, Ariz.; at Barstow and Bridgeport, Calif.; near Johnston, Nebr.; at Columbus and Green Springs, Ohio; and near La Grange, Tex.
ILLINOIS Lee, De Kalb, Kendall, and Will Counties	15	2-3 a.m.	75	75- 200	0	0	5		Tornado and wind	Tornado and associated wind squalls moved rapidly from south of Dixon to Compton, Sandwich, northeast of Plattville, and south of Joliet. Heaviest damage at Sandwich, where a great number of trees damaged or destroyed, but almost no structural damage observed. Barns destroyed at Compton, south of Waterman, and northeast of Plattville indicate tornadic force. Much damage due to straight winds. Tornado

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
ILLINOIS (Cont'd.)										path not well defined and there may have been 2 or more funnels involved. Time fixes are not certain. Storm moved east-southeastward.
INDIANA Lake County	15	2:40 a.m.					5	1	Electrical	Lightning struck tank of petroleum with loss of \$150,000. Fire caused by lightning damaged home just east of Crown Point.
ILLINOIS Bedford Park, Cook County	15	Early morning					5	1	Electrical	Lightning fired large storage tank containing naphtha.
INDIANA Sharpville (near), Tipton County	15	Early morning					4	1	Electrical	Home destroyed by lightning and fire.
INDIANA Logansport and Rochester, Cass and Ful- ton Counties	15	Early morning					4	1	Electrical and wind	Property damage caused by wind and fires resulting from lightning.
INDIANA Warsaw, Kosciusko County	15	Early morning					4	1	Electrical, wind, and rain	Barn near Oswego and house at Winona Lake struck by lightning. Wind and rain caused some damage.
WEST VIRGINIA Boaz (near), Wood County	15	Early morning						3	Electrical	Loss of barn and 400 bales of hay resulted from lightning strike.
ILLINOIS Vermilion County	15	5 a.m.	17	30	0	0	3	1	Tornado	Small tornado affected 1 farmstead east of Sidell and earlier damaged 1 home in Tilton. Intermittent path. This rare southwestward moving tornado caused little damage. Field survey showed localized effects and sweet corn stalks broken and tipped in such a way as to indicate rotary and cyclonic winds. Much heavier damage farther north by about 2 hours.
INDIANA Lafayette, Tippicanoe County	15	5:45 a.m.					4	1	Rain and wind	2 small bridges washed away and county roads damaged. Wind caused limbs to fall on 2 cars, with loss of \$200.
MAINE Allagash, Aroostook County	15	11:20 a.m.	20	300- 400	0	0	5	1	Tornado	In remote forested area. Date given is probable, but some reported it as on 22d. Tornado verified by aerial survey. Path began 20 miles southwest of Allagash, going east-northeastward for 6 miles and turning nearly due east, ending 15 miles southeast of Allagash, or about 4 miles west of Fish River Lake. Hardwoods broken; firs and spruce uprooted, in swirl fashion. Width of path variable, with some skipping.
CALIFORNIA Western Los Angeles County and Orange County	15	Morning			5	Many	4		Electrical and rain	Lightning struck light plane cruising near Santa Ana, causing crash which killed 2 occupants. Lightning struck 2 homes in Arcadia, set fire to house and garage in Downey, and struck many trees, powerlines, poles, and transformers in Downey, Arcadia, and San Fernando Valley areas. Locally heavy rains caused rash of traffic accidents resulting in 3 deaths and scores of injuries.
INDIANA Rensselaer, Jasper County	15	A.m.				1	3	1	Wind	Wind tore down some tents at fair and caused other minor damage.
CONNECTICUT Easton (2 miles south- west of), Fairfield County	15	12:45- 12:55 p.m.	1/4	75	0	0	3	1	Tornado and rain	Small tornado passed eastward largely through wooded area just west of northwest extremity of Hemlocks Reservoir, some 5 miles northwest of Bridgeport. Cooperative observer caught in storm had his 1-ton pickup truck lifted and dropped upright about 20 feet east of original position. He also witnessed tree limbs and debris whirled in circular pattern some 100 feet above ground as storm passed with sound of "locomotive" and torrential rains. Pine and hardwood trees from 6 to 10 inches in diameter twisted off from 5 to 15 feet above ground at scattered points in forest next to reservoir. Reservoir waters littered with debris, which was noted to be in compact, well-defined deposit by above observer, shortly after storm passage.
COLORADO Sedgwick County	15	Afternoon			0	0			Funnel aloft	Funnel cloud observed in storm clouds north of Julesburg just before heavy rain. It almost touched ground at 1 point, but was sucked up into clouds and disappeared.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

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					Killed	Injured	Property (exclusive of crops)	Crops		
MAINE	15	Afternoon					4	3	Electrical, wind, and hail	Local damage, principally in Lewiston, Waterville to Old Town, and Caribou-Limestone area. Wind felled trees and utility lines. Falling trees damaged house at North Anson and house and automobile at Hinckley. Hail up to 3-inch diameter in Caribou, but too soft for major damage. Some windows broken in homes, and automobiles and minor damage to airplane. Considerable damage to gardens in Caribou-Limestone area, but little to commercial crops. Some crop damage near Clinton and Hinckley by hail.
MASSACHUSETTS Eastern portion	15	Afternoon				3	4	1	Electrical, wind, and hail	Lightning injured 2 persons in South Boston and 1 in Scituate. Set barn afire at Fitchburg and home in Roxbury. Wind felled trees and utility lines in some communities. Falling tree damaged Weymouth house. Uncompleted water tower in Braintree seriously buckled by wind. Hail fell in some areas, but no damages reported.
VIRGINIA Harrisonburg area, Rockingham County	15	Afternoon							Rain and wind	Harrisonburg and areas to northwest swept by most severe rain- and windstorm of summer. Several barns west of Rockingham unroofed.
NORTH CAROLINA Harnett and Rockingham Counties	15	4-7 p.m.						5	Hail	Tobacco damaged in fields.
TEXAS Clifton (9 miles east of), Bosque County	15	4:45-5 p.m.	1	300	0	0	3	3	Tornado	Church twisted on foundations, windows exploded out, doors twisted, and wall pulled loose. Out-houses damaged; home moved from foundation; trees uprooted; TV antennas downed. Tornado moved eastward.
KANSAS Gray and Meade Counties	15	5:30 p.m.					3		Wind, hail, and electrical	Considerable damage resulted from wind and hail over Gray and northern Meade Counties during early part of night. Hail drifted a foot deep 7 miles north of Montezuma. High winds also damaged orchards and buildings. 8 miles north of Plains wind caused extensive damage to buildings. Hailstones from 1/2 inch in diameter to size of golf balls. Lightning damaged 2 motors in school at Ingalls and caused about \$1,000 damage to roof of consolidated school at Cimarron.
VIRGINIA Lynchburg, Campbell County	15	5:30- 7:30 p.m.			2		5		Electrical and rain	Severe electrical storm. Damage to roadways and property. Lightning fires set, with 1 doing extensive damage to warehouse. Majority of damage resulted from flash flooding. 2 persons drowned. Rainfall totalled 5-1/2 inches at Lynchburg river-rainfall gage.
FLORIDA Homestead, Dade County	15	5:47 p.m.			0	0			Funnel aloft	
MISSOURI Jackson County	15	6 p.m.					4		Wind, rain, and electrical	Winds hit 54 m.p.h., in eastern part of Kansas City. Indian Creek bank full. Many tree limbs and power- and phone lines downed. Church in Independence hit by lightning. Several cows killed when hit by lightning north of Independence.
COLORADO Yuma County	15	6:15 p.m.					4	4	Wind, rain, and hail	In vicinity of Wray and Vernon, heavy wind with rain and hail. Wind broke limbs off trees, broke other trees off, took roof off barn, and damaged other buildings and property. Hail damaged some irrigated corn. Fields suffered erosion by runoff.
KANSAS Sherman and Thomas Counties	15	9 p.m.				1			Electrical and wind	Lightning struck trailer house at Goodland with injury to a girl. Severe wind squall 3 miles north of Brewster destroyed combination machine shed and airplane hangar and scattered debris for 3 miles. Many TV antennas bent or broken and there were numerous breaks in power- and communication lines.
PENNSYLVANIA Somerset, Perry, and Lancaster Counties	15	Night					4		Electrical and hail	14 dairy cattle killed by lightning. Building fired by lightning. Some windows broken by hail. Storm moved eastward.
	15									Minor storms also reported at Rochester, Ind.; in extreme eastern Iowa; near Hays and at Ottawa, Kans.; at Fall River, Mass.; near Hardin, at Louisiana, Raytown, and Salisbury, Mo.; near North Platte, Nebr.; and in Lexington area, Va.

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NORTH CAROLINA Martin County	15-16	7 p.m. 15th -2 a.m. 16th					4	3	Electrical and rain	Prolonged thunderstorm caused widespread damage to power- and telephone lines, transformers, appliances, etc. Several farm animals killed by lightning. Nearly 5 inches of rain caused some washing of farmlands and rural roads.
	15-16									Minor storm also reported at Emporia, Kans.
WISCONSIN Mt. Hope, Grant County	16	12:15 a.m.					4	1	Wind, rain, and electrical	Losses from wind.
KANSAS Douglas and Wyandotte Counties	16	6:45- 7:30 a.m.				9			Rain	Heavy rain given as contributing factor in 3 accidents on Kansas Turnpike between Kansas City and 12 miles west of Lawrence.
NORTH CAROLINA Forsyth and Guilford Counties	16	Afternoon						4	Hail	100 acres of tobacco in fields badly damaged.
SOUTH CAROLINA Rich Hill community, Lancaster County	16	Afternoon				1	1	1	Electrical	
NORTH CAROLINA Forsyth, Rockingham, and Surry Counties	16	3-5 p.m.					4	5	Hail	Tobacco and corn damaged in fields. Roofs damaged.
UTAH Morgan, Morgan County	16	4-5 p.m.	3-4	*2			4	3	Rain and electrical	Heavy rain caused flash flooding and a series of rock and mud slides. Highway closed for a time. Unofficial measurements indicated well over 5 inches of precipitation in center of storm.
FLORIDA Havana, Gadsden County	16	P.m.							Wind	Large tobacco barn demolished; damage not estimated.
CALIFORNIA Lake Isabella, Kern County	16					1			Electrical	Lightning killed man fishing from boat on lake.
	16									Minor storms also reported at Phoenix, Ariz.; at Central City and Pueblo, Colo.; at Abilene, Green, Wichita, and near Norton, Kans.; at East Prairie and Ft. Lyon, Mo.; at Tonkowa, Okla.; at Pittsburg, Pa.; and at Somerville, Tenn.
OKLAHOMA Lima, Seminole County	17	6:35 a.m.					4	1	Electrical	Lightning caused fire which burned church.
INDIANA Newville, De Kalb County	17	2:40 p.m.				1	4	3	Wind and hail	Roof torn from house. Twisted pens released 100 mink at mink farm. Hail caused minor damage to crops. Fallen trees and powerlines blocked roads. Storm moved eastward.
GEORGIA Cairo, Grady County	17	4 p.m.	Short	Narrow	0	0	3	1	Tornado (sus- pected) and rain	Unroofed 1 store building and caused considerable other damage in small area of downtown Cairo. Heavy rains caused additional damage to contents of unroofed building. Storm moved eastward.
TEXAS Cleburne, Johnson County	17	5-6:10 p.m.	1				4		Wind and rain	Plate-glass windows shattered, with resultant water damage to interiors; barn unroofed; several house roofs damaged; trees uprooted. 67-m.p.h., wind gusts. Rainfall 2-1/2 to 4 inches in various sections. 4 small business buildings badly damaged; garden walls and signs downed. During last 15 minutes, wind swirled from every direction. Temperature dropped 29° from 101° to 72°. Storm moved southeastward.
IOWA Carroll and Greene Counties	17	7 p.m.					1	4	Hail	
CALIFORNIA Sequoia National Forest	17						4		Electrical	Lightning strikes caused over 40 fires.
	17									Minor storms also reported at Forest Home, Ala.; at Durango and in Custer and Fremont Counties, Colo.; at Pocatello and near Weiser, Idaho; at Shawnee, Okla.; and at Erie, Pa.

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RHODE ISLAND Coastal areas	17-18								Hurricane	Wind pattern and velocity attributed to hurricane Cleo and associated pressure pattern produced unusually heavy surf and swell along Rhode Island coast. Breakers up to 15 feet high and offshore swells estimated as 13 feet from crest to trough resulted in several near drownings and closing of beaches through 18th. No property damage occurred, but as surf greatly subsided on morning of 19th, tons of seaweed deposited on exposed beaches, preventing bathing.
SOUTH DAKOTA Aurora and Charles Mix Counties	18	4:30-6 p.m.					4	5	Hail, wind, and electric	Most damage in and around White Lake where hail 1 inch in diameter banked up in streets. At Geddes, stones reached 1-1/2 inches. Many windows broken out in both towns. Winds damaged several farm structures. A number of prairie fires started by lightning.
CALIFORNIA Placer and Eldorado Counties (east- ern portions)	18				2	1	3		Rain and hail	Cloudburst caused landslide on Highway 40 near Truckee, killing 1 man and injuring another. Highway worker also killed when truck overturned while clearing slide. Hail fell to depth of 4 inches near summit of Echo Pass, and rockslide partially blocked highway.
	18									Minor storms also reported near Amherst and at Westcliffe, Colo.; at Caribou, Maine; at Carthage, Mo.; at Butte, Nebr.; and in Alpena and Woonsocket areas, S. Dak.
COLORADO Buena Vista area, Chaffee County	19	1:30 p.m.					4		Rain and hail	Cloudburst in Chalk Creek Gulch, flooded buildings, leaving several inches of mud on floors, damaging furnishings and water systems. Hail broke 75 panes of glass in greenhouse, and damaged plants.
COLORADO Boulder County	19	Afternoon	15				4	4	Wind, rain, hail	Storm hit area, northeast of Boulder extending to Lafayette, uprooting trees, damaging crops, and washing out roads. Hail heaviest northeast of Boulder. Storm moved southeastward.
COLORADO Eagle County	19	Afternoon			0	0	3		Tornado (sus- pected) and electrical	Twister struck southeast of Gypsum, breaking windows in house, uprooting trees, and damaging shrubbery. In Sweetwater area, lightning struck 3 telephone poles and caused damage to home nearby.
NEW JERSEY Ocean City and Beach Haven, Cape May and Ocean Counties	19	Afternoon			5	7			Wind	3 men drowned and 7 injured when fishing boat capsized at Ocean City in rough seas. Man and boy drowned in 2 separate accidents in rough surf at Beach Haven.
WYOMING Powell to Kane, Park and Big Horn Counties	19	Late afternoon	40	*2			1	4	Hail, wind, and rain	Storm moved eastward.
CALIFORNIA Siskiyou County	19	Evening					4		Electrical	Lightning strikes caused 63 fires in widely scattered areas, and burned out 100 transformer fuses in Yreka-Grenada area.
	19									Minor storms also reported at Bisbee and Tucson, Ariz.; at Colorado Springs, Pueblo, and in Pikes Peak area, Colo.; at St. James, Mo.; and near Ewing and at Kearney, Nebr.
MICHIGAN Southern and western por- tions	19-20	6 p.m. 19th -9 a.m. 20th			1	4	5	4	Wind, rain, electrical, and hail	High winds caused considerable damage to trees and buildings. Heavy rains brought flooding and washouts to some localities, and lightning set a number of fires. Heaviest wind damage occurred in village of Paw Paw. Some crops damaged by hail.
OREGON Southwestern and south- central por- tions	19-20						4	2	Electrical	Fairly violent lightning storm over southwest and south-central started a large number of spot fires, but no known lightning-set forest fire reached size of any significance. Number of lightning strikes suffered by power installations, halting services for short period and causing some damage to equipment. A number of fires started, apparently by lightning, in brush and range land. While some of these reached over 100 acres in size, land burned over of little value.
OKLAHOMA Marlow, Stephens County	20	2:35 p.m.					5	1	Rain	3 cars involved in accident, due to heavy rain; 5 persons injured, and extensive damage resulted to automobiles.

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TEXAS Ralls, (north- west of), Crosby County	20	Afternoon	2	300				5	Hail	150 acres of cotton badly damaged and 350 others damaged. Storm moved eastward.
OKLAHOMA Tulsa area, Tulsa County	20	3:20 p.m.	**50	35	0	0	3	1	Tornado and wind	Small tornado dipped to near ground, unroofed house, damaged grocery store, and broke off some trees in Tulsa. Wind damaged some outbuildings east of Tulsa. Storm moved northeastward.
TEXAS Matador (28 miles north- west of), Floyd and Bris- coe Counties	20	3:45 p.m.	1	50	0	0	3	2	Tornado	Cornfield heavily damaged. Stone veneer strip- ped from side of house and garage. Thick glass brick window broken
FLORIDA Miami, Dade County	20	4:03 p.m.			0	0			Funnel aloft	Did not touch ground; sighted northwest of Miami.
TEXAS Vera area, Knox County	20	4:45- 5:30 p.m.	1-1/2	1000	0	1	3	3	Tornado, hail, and rain	Wind lifted roof from house; another house destroyed. Large hail damaged cotton and feed crops on several farms. Tree trunks to 15 inches in diameter twisted off; debris scat- tered over 1-1/2 mile area. 3 inches of rain- fall in a few minutes. Storm moved southeast- ward.
TEXAS Post area, Garza County	20	5 p.m.	3	*2				4	Hail and wind	Marble-sized hail caused serious damage to cotton on 3 farms. Windstorms throughout this area on 20th appeared to have been isolated bursts from scattered thunderclouds over most of South Plains. Storm moved southeastward.
TEXAS Dickens, Glem, and Afton, Dickens County	20	5 p.m.	50	20				4	Wind, electri- cal, and rain	Several houses damaged, 2 by lightning; trees broken, utility line poles downed. Several persons reported being shocked by electricity cast off by lightning bolts. Storm moved southeastward.
TEXAS Sherman (near), Grayson County	20	6:45 p.m.			0	0			Funnels aloft	Pilot reported 3 funnels.
KANSAS Shawnee County	20	8:30- 9:30 p.m.							Electrical and rain	Deluge of rain flooded many low places in Topeka. Many cars stalled when driving through pools of water. Vivid flash of ball lightning observed to strike ground at 9:30 p.m. Ball about size of large dishpan and quite red. It ran along a fence for about 2 rods ending with a violent explosion. Storm moved south- eastward.
INDIANA Hamlet, Starke County	20	9:55 p.m.			0	0			Funnels aloft	2 funnels sighted moving northeastward.
TEXAS Cleburne (north of), Johnson County	20	10:24 p.m.			0	0			Funnel aloft	Moved northward or northeastward.
MISSOURI Marion County	20	8-11:45 p.m.					4		Rain and wind	Heavy rains, up to 3 inches, and gusty winds. Many tree limbs and phone- and power lines downed.
NEW MEXICO Silver City, Grant County	20	P.m.							Rain	Main damage to streets and roads. Some retain- ing walls washed out.
OKLAHOMA Payne, Lincoln, Creek, Okfuskee, Pottawatomie, Seminole, Hughes, and Pontotoc Counties	20	P.m.							Rain	Heavy rains of up to 10 inches through area caused considerable damage to crops and some flooding resulted. Automobile stack-up east of Cushing, Payne County, during heavy rain resulted in \$2,000 damage to vehicles involved. Another car total loss when it left highway during heavy rain.
KANSAS Wyandotte County	20	Evening				1			Electrical	Woman rendered unconscious by electrical shock at 4-H fair held near Kansas City.
	20									Minor storms also reported at Tucson, Ariz.; at Elkhart, Ind.; in eastern Iowa; at Canton, Mo.; in Alliance and Lexington areas, Nebr.; and at Anadarko and Lindsay, Okla.
ARKANSAS Walnut Ridge (6 miles north of), Lawrence County	21	1:15 p.m.			0	0			Funnels aloft	2 funnel clouds extended to within 1,000 feet of ground, then receded back into clouds.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
PENNSYLVANIA Western por- tion	21	Afternoon -evening					4	1	Electrical and wind	Dairy barn fired by lightning near Pittsburgh. Tents blown over at farm show. Home fired near Johnstown. Storm moved eastward.
PENNSYLVANIA Eastern por- tion	21	Evening- night				1	5		Wind and electrical	Severe in Scranton area where gusts of wind reached 65 m.p.h. Many trees, powerlines, and utility poles downed. Barn fired by lightning near Lancaster. Lumberyard in Reading fired by lightning, resulting in \$140,000 damage. Storm moved eastward.
CONNECTICUT North Cole- brook, Litch- field County	21	8:15- 8:20 p.m.	** 350	50	0	0	2	1	Tornado (sus- pected) and electrical	Storm traveled short path north-northeastward down forested ridge and between 2 homes and left ground shortly thereafter. Some 20 trees, including large oaks and maples, snapped off at varying heights above ground and transformer loosened on pole. Witness described noise like "freight train passing over bridge"; did not see funnel, due to darkness. Lightning ob- served during storm passage, but rain came somewhat later. Storm associated with con- siderable thunderstorm activity in northwest Connecticut. Residents nearby to small affect- ed area noted only routine summer thunderstorm.
FLORIDA Homestead, Dade County	21	P.m.			0	0			Funnel aloft	
NEW MEXICO Mesilla Valley	21	P.m.					4	4	Rain	Irrigation structures damaged. Cotton and alfalfa fields flooded.
TEXAS LaMarque, Galveston County	21				1				Electrical	Boy struck and killed by lightning.
	21									Minor storms also reported at St. Charles, Idaho; in central Iowa; in southwestern Maine and central and southern N. H.; at Baltimore, Md.; at Orovida, Nev.; and near Green River, Utah.
IDAHO Boise and vicinity, Ada County	22	Early morning			1				Electrical	1 house and 1 business building set afire by lightning in city. Lightning fire in haystack near Eagle was indirect cause of death of 1 man when his tractor overturned as he attempt- ed to move farm machinery away from blaze.
GEORGIA Savannah, Chatham County	22	10:10 a.m.			0	0			Funnel aloft	Reported by aircraft.
UTAH Fairfield (2 miles east of), Utah County	22	1:55- 2:10 p.m.			0	0			Funnel aloft	
WYOMING Bedford to Freedom, Lincoln County	22	Afternoon	10	*1			3	4	Hail and wind	
SOUTH DAKOTA Walworth and adjacent Counties	22	Late afternoon						4	Hail	Most damage northwest of Glenham, southwest of Selby, and north of Java Storm moved south- eastward.
COLORADO Pikes Peak	22					1			Electrical	11-year old boy knocked unconscious by bolt of lightning on summit of peak while playing under jet plane on display.
	22									Minor storms also reported at Foley, Mo.; near Wink, Tex.; and at Clarkston and Orangeville, Utah.
MISSISSIPPI Gulfport (5 miles north- northeast of), Harrison County	23	9:25 a.m.			0	0			Funnel aloft	
MINNESOTA Wykoff (near), Fillmore County	23	1:30 p.m.			1		1	1	Wind	Cornerib roof blown off. As it fell to ground, struck and killed 1 man as he shovelled corn from crib into his truck.
OKLAHOMA Waynoka, (4 miles north- east of), Woods County to Cleo Springs, Major County	23	2-3:30 p.m.	25	*3	0	0	4		Tornado, wind, hail, rain, and electri- cal	Tornado reported to have dipped from severe thunderstorm east of Waynoka. Strong winds, hail, and heavy rain caused widespread damage to trees, buildings, crops, etc. 1 farmer

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958'

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
OKLAHOMA (Cont'd.)										lost 1,000 turkeys. 3 head of cattle killed when tree blown over. Lightning killed 5 head of cattle on 1 farm and 8 head on another. Crop damage included watermelons shattered, fruit knocked from trees, and grain sorghums flattened. Storm moved southeastward.
OKLAHOMA Greer County	23	5 p.m.	7	*1					Hail, wind, rain, and electrical	Heavy hail of up to 1 inch in diameter caused heavy damage to crops in southwest Greer County. Strong winds destroyed barn and outbuildings and damaged house on 2 farms in area. Lightning caused fire which burned home near Willow. Storm moved southward.
NEBRASKA Peru (1 mile northwest of), Nemaha County	23	6:50 p.m.	1/2	Narrow	0	0	3	2	Tornado	Several farm buildings damaged.
	23									Minor storms also reported at Athens, Ala.; at Maricopa, Ariz.; near Roswell, N. Mex.; and near Erwin, Tenn.
NORTH CAROLINA Forsyth, Mecklenburg, Wake, and Yadkin Counties	24	3-6 p.m.			2	1	4	3	Electrical and wind	Golfer killed by lightning near Charlotte, and 9-year old boy killed under tree at Cary, Wake County. Golfer's companion injured. Trees uprooted and roofs and tobacco barns damaged in Forsyth County. Slight damage to crops in fields over large area.
	24									Minor storms also reported in Dallas County, Ala.; at Gaffney, S. C.; and at Cookeville, Donelson, and Nashville, Tenn.
OREGON Much of State	24-25	Afternoons-evenings					5	2	Electrical	Lightning storms scattered over entire State during 2-day period. Over 100 forest fires set, but most controlled before reaching 1/4 acre in size. However, 1 near Detroit in Willamette forest burned over approximately 1,000 acres much of which had considerable marketable timber. Combined total man-hours involved in fighting fires set by lightning during this storm would run into tens of thousands.
MASSACHUSETTS Reading, Middlesex County	25	5 a.m.	1	30	0	0	3	1	Tornado	Damage at tree-top level over portion of path. Broke and uprooted trees and damaged buildings. Destruction included commercial building roof built of 3-1/2 inch planking. Path northeastward, somewhat wavering.
OKLAHOMA Jefferson, Grant County	25	3-4 p.m.		*1					Hail and wind	Hail up to size of golf balls, with strong winds caused considerable damage to windows, buildings, and crops. Storm moved southeastward.
GEORGIA Waycross (10 miles northwest of), Ware County	25	3:15 p.m.			0	0			Funnel aloft	
OKLAHOMA Alfalfa, Major, Blaine, Kingfisher, Canadian and Caddo Counties	25	3:30-6:30 p.m.	90	*3					Hail, wind, and rain	Heavy hail, strong winds, and heavy rain caused severe damage all along path. Hail up to size of hens' eggs fell in clusters and some as large as baseballs damaged roofs, neon signs, windows, and stripped gardens, crops, and fruit trees. Crop damage in Alfalfa County estimated at \$100,000, and heavy property damage noted in Cherokee. Strong winds damaged outbuildings, trees, etc., and hail stripped crops in Blaine County where property damage estimated at \$15,000 and crop damage at \$5,000. Storm moved southward.
TEXAS Wellington area, Collingsworth County	25	6 p.m.	6	*3				4	Hail	In hardest hit areas, cotton stalks stripped of every leaf and boll. Damage in other areas. Storm moved southeastward.
OKLAHOMA Enid, Garfield County	25	P.m.				1	1	1	Electrical	Man injured while using telephone when lightning struck.
WASHINGTON Columbia Basin	25	Evening					4	4	Wind, dust, electrical, and hail	High wind associated with thunderstorm activity caused severe duststorm to develop in vicinity of Quincy-Moses Lake and moved eastward to vicinity of Spokane. Visibility reduced to zero by blowing dust. Powerlines downed in some localities. Lightning started grass fires which burned over 12,000 acres of range land. Several smaller grass and forest fires started by lightning. Thunderstorms and light hail occurred in Yakima Valley. Several power outages occurred. Hail damage very light.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories +		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
	25									Minor storms also reported in Boise and vicinity, Idaho; in Brown, Cottonwood, Jackson, Martin, Redwood, Waseca, and Watonwan Counties, Minn.; at Cologne, N. J.; and at Hollis, Okla.
DELAWARE	25-26	P.m. 25th- a.m. 26th							Rain and wind	Primary and secondary roads in the 3 counties suffered worst washouts in recent years when heavy rains deluged State and as severe wind-storm described as "small twister" roared through Felton downing at least a dozen trees and utility wires and cutting electric and telephone services. Kent County and northern Sussex County hardest hit as 5 to 7 inches of rain fell. Many crops seriously injured by strong winds and rains with tomato crop virtually ruined.
MARYLAND Caroline County	25-26						5		Rain	As storm-swollen Marshyhope Creek inundated a third of Federalsburg area, State Police declared Federalsburg disaster area. Rainfall amounts of over 11 inches reported in some places for 3-day period contributed to swelling of Marshyhope Creek some 9 feet over its banks and spreading 3 to 4 feet of water over low-lying residential areas. Flooding also reported at Greensboro, 6 miles north of Denton on banks of the Choptank River. Choptank reported 2 feet over bridge at Red Bridges, 3 miles north of Greensboro, where bridge normally clears water by 5 feet. In Federalsburg, many homes evacuated and merchandise or stocks of supplies in bakeries, and other stores moved to upper floors. Flood reached its crest at about 4:45 p.m., on 26th where waters boiled over Central Avenue bridge and swept into Main Street flooding basements and first floors of several stores. (Disastrous flood in Federalsburg in 1935 caused about a million dollars damages.)
	25-26									Minor storm also reported in Bonner County, Idaho.
SOUTH CAROLINA Charleston Harbor, Charles- ton County	26	9:15 a.m.			0	0	1	1	Waterspout	
SOUTH DAKOTA North-central, central, and east-central portions	26	2 p.m.- midnight						4	Electrical	At least 19 fires started by lightning, mostly prairie fires. About 25 to 30 square miles of prairie burned over, in addition to barn, silo, and haystacks. Storm moved southeastward.
SOUTH DAKOTA McLaughlin (40 miles west of), Corson County	26	2:15 p.m.			0	0			Funnel aloft	Pilot reported funnel moving southeastward.
SOUTH DAKOTA Kingsbury County	26	11:30 p.m.	30	*2-8				4	Hail	From several miles north of Manchester to Arlington. Most damage 4 miles east of Lake Preston where 1-inch hailstones ripped leaves from corn stalks. Storm moved east-southeastward.
	26									Minor storms also reported in Riverside and San Bernardino Counties, Calif.
NEBRASKA North Platte (20 miles south of), Lincoln County	27	9:15 p.m.	Short	Narrow	0	0	1	1	Tornado	Appeared to touch ground in open field.
FLORIDA Miami, Dade County	27	P.m.					5		Wind	Violent thunderstorm toppled large theater tent and twisted steel beams in new hospital under construction.
	27									Minor storms also reported at Roll, Ariz.; in central Iowa; and at Matawoon, New Richland, and in Lyon County, Minn.
IDAHO Caribou County	28	Afternoon							Hail	Hailstones up to 1 inch in diameter fell for about 45 minutes southeast of Soda Springs, flattening wheat and barley fields and causing loss of 40 to 50 percent of crop.
NEBRASKA Callaway (near), Custer County	28	Evening			0	0	3	1	Wind or tornado (suspected)	Barn wrecked.
SOUTH DAKOTA Hanson, McCook, and Minnehaha Counties	28	Night	45	*6			2	4	Hail and wind	Hail fell from Farmer to Huntimer, but caused most damage in northeastern corner of McCook County. Wind shifted a few farm buildings on their foundations. Storm moved east-northeastward.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MASSACHUSETTS Extreme south- eastern por- tion	28									Minor storms also reported near Ringgold, Nebr.; in Tripp County, S. Dak.; and near Plymouth, Wis.
	29	Forenoon					1	1	Hurricane	Little or no property damage, but considerable loss to tourist trade in Cape and Island resort areas. Fastest mile of wind at Nantucket 42 m.p.h., from north at 10:38 a.m., after Hurricane Daisy center had passed about 65 miles to southeast at its closest approach.
MINNESOTA Blue Earth and Steele Counties	29	6:15 p.m.	5	*2			4	4	Hail and rain	Hailstones, size of goose eggs, in Pemberton area. Soybean pods torn from plants, and corn stalks stripped. Many fields laid low. Hundreds of windows broken, and cars dented and chipped. Some farmers estimated soybean yield would now be 10 bushels to acre; before hail estimates were 30 bushels. Unofficial rain of near 3 inches reported. Brief hail also fell in Steele County along path from Owatonna to Blooming Prairie, where due to small size of hail and shortness of storm, damage reported very light. Storm moved eastward.
MICHIGAN Lower portion	29									Minor storms also reported near Yocemento, Kans.; and at Fond du Lac, Wis.
	29-30	Night				2	5	4	Wind, electrical, and hail	Considerable damage by wind and lightning in many communities. Hail occurred in a few areas.
MINNESOTA Hennepin, Anoka, and Ramsey Counties	30	7 a.m.					4	1	Wind, rain, electrical, and hail	Strong winds, unofficially with peaks to 70 m.p.h., upturned 5 small aircraft at Anoka County Airport, near Anoka. Another pontoon aircraft upturned at White Bear Lake, total loss. Numerous moored sail boats overturned. Lightning struck and partially burned barn north of Anoka. Crystal Airport, Hennepin County, reported some light damage to parked aircraft. Rainfall of 1.55 inches at Coon Rapids from 6 to 7 a.m. Second severe thunderstorm hit same area near 9 a.m. Some light hail also fell; no damage due to hail. Storm moved eastward.
LOUISIANA Lake Arthur (15 miles south of), Cameron Parish	30	11:44 a.m.			0	0			Funnel aloft	
WISCONSIN Wausaukee (3 miles south- east of), Marinette County	30	5:30 p.m.	1	100	0	0	4	1	Tornado	Tornado moved eastward.
WISCONSIN Marinette County	30	6:40 p.m.					4	1	Wind, rain, hail, and electrical	Storm moved eastward.
ILLINOIS Loves Park, Winnebago County	30	7:50 p.m.	Short	Narrow	0	0	4	1	Tornado	1 newly-built house destroyed and another damaged.
ILLINOIS Chicago, Cook County	30	10:55 p.m.	1	70	0	0	4	1	Tornado	Tree damage and some roof damage. Tornado moved east-northeastward.
TEXAS China, Jeffer- son County	30									Minor storm also reported at Green Bay, Wis.
	31	11:44 a.m.			0	0			Funnel aloft	
FLORIDA Ft. Lauderdale, Broward County	31	1:15 p.m.			0	0			Funnels aloft	3 funnel clouds sighted near Ft. Lauderdale.
NEW YORK Statewide	31	Afternoon- evening			2		4		Wind, rain, hail, and electrical	Severe thunderstorms with winds up to 70 m.p.h., in scattered areas across State. Powerlines and many trees downed. Moderate crop damage in loss of fruit. 1 man struck by lightning near Olean. 1 child struck and killed by falling tree limb struck by lightning near Buffalo.
NEW YORK Oswego, Oswego, County	31	5:40 p.m.			0	0	4		Tornado	Small tornado of brief duration and limited coverage; not much evidence of low pressure explosive damage; light circular wind. Severe damage to some buildings; trees downed, bringing powerlines down. 2 funnels reported.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

AUGUST 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
PENNSYLVANIA Statewide	31	Evening- night			1	1	5	1	Electrical and wind	Man killed by lightning near Kane. Another injured by falling tree limb near Pittsburgh. High winds caused widespread damage, mostly in west, via fallen trees, snapped utility wires, overturned airplane, house unroofed, and tents blown down. At Sunbury, 2 barns destroyed by lightning-induced fires. Storm moved eastward.
	31									Minor storm also reported in Puget Sound area, Wash.
DELAYED REPORTS										
KANSAS Hamilton County	July 9	7:30-10 p.m.	4	500				4	Electrical	Lightning struck in wheat field 5 miles north of Syracuse. Approximately 700 acres of standing wheat burned. Storm moved eastward.
MAINE Pemaquid Beach, Lincoln County	17				1				Wind	Boy fatally stabbed by wind-blown beach umbrella.
INDIANA Indianapolis, Marion County	27	Evening				1	1	1	Electrical	Person stunned by lightning while standing on porch during storm.
INDIANA Shoals, Martin County	28	12:30 a.m.	4/10		0	0	2	1	Tornado, hail, and rain	"Isolated miniature tornado" hit 4 blocks of city, tearing down trees and television antennas. A few cars received minor damage. Hail and heavy rain also occurred. Storm moved northward.
VIRGINIA Norfolk	28	4 p.m.			2				Electrical and rain	Severe electrical storm accompanied by torrential rain battered Norfolk area.
VIRGINIA Fishersville (2 miles north of), Augusta County	28	8 p.m.	1/2	440			4	0	Wind or tor- nado (sus- pected)	Possible tornado roared thru countryside 2 miles north of Fishersville, splitting trees. Wind speeds estimated at 100 m.p.h. At least 1 person reported seeing funnel cloud; others reported sound like jet plane. Highest winds estimated 100 m.p.h., over 2-minute period. Storm moved northeastward.
INDIANA Hastings, Kosciusko County	29	3 p.m.					4	3	Wind	Strong winds damaged buildings and windows and flattened oat field.
INDIANA Knox (north of), Starke County	29	Afternoon	3		0	0	4	1	Tornado	Barn and other buildings damaged on 3 farms. State police reported storm to be tornado.
INDIANA Moonville (1 mile north of), Madison County	30	2 p.m.					3		Wind	Trees blown down, falling on garage and automobile.
INDIANA Terre Haute, Vigo County	31	A.m.					4		Rain and electrical	2.50 to 4.30 inches of rain in 24 hours flooded basements and buildings and damaged property. Lightning struck house and radio station. Loss at house \$1,600.
INDIANA New Castle, Henry County	31	2:30 p.m.					5		Rain	2 inches of rain in 15 minutes and 2-1/2 in 24 hours caved in foundations, flooded basements, and beat down unharvested grain and hay.

* Miles instead of yards.

** Yards instead of miles.

° Includes crop damage.

C Crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

NORTH PACIFIC TROPICAL STORM of AUGUST 7-8, 1958

H. C. Sumner
Marine Section, Office of Climatology
U. S. Weather Bureau

Evidence indicating the existence of a tropical storm off Hilo on the east coast of the Island of Hawaii began to filter into the Honolulu Forecast Center during the early morning hours of August 7. There was little advance warning since no reports from the storm area had been received during the previous 48 hours.

The first apparent indication was a departure from the normal diurnal wind and pressure patterns at Hilo. By 5 a.m. (HST)* on the 7th, the wind at that station had increased to 25 knots with gusts to 31 knots. Moderate showers began at that time. In the Kopoho area, winds were estimated as high as 50 to 60 knots.

There was a spectacular change in the rate of pressure fall at Hilo beginning about 0600 on August 7. The 24-hour pressure fall increased from 3.3 mb. at 0500 to 6.1 mb. at 0600 and the increase continued until the maximum fall of 13.2 mb. in 24 hours was reached at 1100. The lowest pressure at Hilo was 1003.7 mb. (29.64 inches) recorded at 1059 on the 7th. Pressure almost as low occurred in the Kona (leeward) section of Hawaii as the storm reached that area.

The storm center moved in a direction slightly south of west across the Island of Hawaii and turned slightly to the west-northwestward as it crossed the west coast and moved out over the Pacific, passing to the south of Maui, Molokai, Oahu, and Kauai as a weakened circulation.

Heavy rains occurred on Hawaii. Wood Valley in Kau reported over 16 inches, while several stations along the Hamakua coast reported a 24-hour fall of 8 to 10 inches. The 24-hour rainfall at Hilo was 1.24 inches. Sustained winds of about 30 knots (34 m.p.h.) occurred at most locations along the path of the storm.

The storm produced rough seas throughout Hawaiian waters. The captain of a Coast Guard cutter, operating south of Oahu, reported that from the bridge, 16 feet above the mean water line, he observed waves which he estimated to be 25 feet in height.

The only loss of life attributed to the storm came in the crash of a privately owned plane near the Hilo Airport at about 0800 on the 7th. The pilot was killed, and two passengers were injured. Estimates indicate that damage resulting from this storm exceeded \$500,000.00.

* All Times are Hawaiian Standard

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

AUGUST 1958

The most damaging floods during the month were the flash floods in the Ohio Basin in the Charleston, W. Va., area. Water in the Kanawha Two Mile Creek Basin was reported 15 to 20 feet higher than in any previous flood. The Arkansas River reached a near record stage at Hutchinson, Kans., early in the month. In July a record crest was reached at Great Bend, Kansas.

ATLANTIC SLOPE DRAINAGE

Local flooding occurred during heavy thunderstorm activity in New Jersey on the 12th, 13th, 16th, 17th, and 25th. Some small earth dams were washed out in the vicinity of Berlin, N. J., during that period.

Minor flooding occurred on the Tar and Neuse Rivers in eastern North Carolina during the latter part of the month and the first part of September, due to heavy widespread thunderstorm activity. No damage was reported.

EAST GULF OF MEXICO DRAINAGE

Flash flooding occurred in the North Montgomery, Ala., area during the late afternoon of the 1st, due to excessive rainfall during the late afternoon. According to police, portions of Yarbrough Street and areas around the Coliseum were flooded. This was the third driest August in 86 years of record at Montgomery.

The flooding on the Pearl River at Jackson, Miss., and Bogalusa, La., during the first few days of the month was due to locally heavy thundershowers during the last 2 days of July. Flooding was confined to low natural pastures and forested land, causing only slight damages.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--Lack of rainfall the first 28 days of August aggravated the low flow of the upper Mississippi River and its tributaries upstream from St. Paul, Minn. August stream flows for most points were well below normal and were approaching the low water years of the 1930's. At Fort Ripley, Minn., on the Mississippi River the August mean stage was 3.3 feet; the lowest mean stage since 2.9 feet in 1936. At Minneapolis, the mean stage was 3.9 feet; 1.9 feet below the longterm mean, and the lowest of record since the river gage was established in 1938. Previous low was 4.3 feet in 1946. The Mississippi River from St. Paul downstream to Guttenburg, Iowa, was just below the normal August mean, generally near 0.5 foot below. At St. Paul, the August mean was 3.0 feet, 0.6 foot below; at La Crosse, Wis., 4.7 feet, 0.1 foot below. The mean stage of the Minnesota River at Mankato, Minn., was 2.4 feet, 1.8 feet below the longterm mean. This August was the same as 1939. All time low for Mankato was 0.8 foot in 1911.

The Illinois, Kaskaskia, and Sangamon Rivers in Illinois were flooding during the latter part of July and continued above flood stage well into August. Although these rivers were generally receding on August 1, widespread shower activity during the last few days of July and the first 2 days of August produced secondary crests early in August. The Mississippi in Illinois and the Meramec in Missouri had dropped below flood stage late in July, then rose again briefly to above flood stage at some points early in August. The secondary crests were approximately 1 foot or more below the July high water mark and new flood damage is considered negligible.

Ohio Basin.--Flash flooding occurred on many streams in the upper Ohio Basin from moderate to heavy showers on July 31 and August 3 and 7. Lowlands along Connoquenessing Creek in the Beaver River Basin were flooded, with many secondary roads covered with water. In northern Beaver County in Pennsylvania, homes, summer cottages, roads, sewers, recreation areas and farm crops suffered heavy damage. Worst hit was Darlington Lake, where 20 families were forced from their homes. Heavy damages occurred in Washington County, Pa., on the 3d, as many small streams overflowed their banks by as much as 5 feet in a period of 15 minutes and caught residents by complete surprise. Homes along the affected areas had as much as 3 to 4 feet of water in the basements. In Westmoreland County, Pa., Irwin, Export, Murrysburg, and Delmont suffered heavy damages from flash flooding. At a trailer camp near Jacktown Hotel, water forced trailers off their pedestals and flooded 10 surrounding homes. Heavy thundershowers on the evening of the 7th caused flash flooding on many of the small tributary streams in Allegheny County.

The flooding on the Little Kanawha River in West Virginia was due to heavy showers (over 2 inches) on the 8th and 9th. Crest stages were exceeded by 3.9 feet at Glenville on the 9th and 3.5 feet at Creston, W. Va., on the 9th.

A minor flash flood occurred on the Elk River on the morning of the 3d, due to heavy thundershowers during the early morning hours of the 3d. In the Charleston, W. Va., area, 2.3 inches of rainfall was recorded in 3 hours. Additional rain during the following 24-hour period caused considerable damage on Kanawha Two Mile Creek which drains the area north of Charleston. Many bridges were washed out and many autos and homes were flooded and damaged in the Charleston area. At East Rainelle, W. Va., the rainfall was heavy and the two creeks in the town flooded eight streets, damaged several autos, and caused several families to move. Severe flooding occurred in the Kanawha Two Mile Creek Basin from heavy rainfall (3.3 inches) during a 2 hour period during the afternoon of the 8th. Reports indicated that the water was 15 to 20 feet higher than in any previous flood. There was some minor flooding scattered throughout the Elk River Basin. The Holly River, a tributary of the Elk River, reported its highest stage at Holly, W. Va., in 35 years. Flash floods occurred in Dickenson and Buchanan Counties of Virginia from the heavy rains on the 24th and 25th. The only damage of importance was along Garden Creek and Grassy Creek, tributaries of Levisa Fork east of Grundy, Virginia. Streams in the headwaters of the Tug Fork of the Big Sandy River rose to bankfull stage with a few streams overflowing down to near Matewan, W. Va., where the Tug Fork came within 18 inches of flooding the streets in the low section of town.

Heavy rains in southern Ohio during the first few days of August caused some minor flooding along the mouth of the Scioto River and on Paint Creek. Minor crop damage resulted at Bourneville on the morning of the 3d when a brief flash flood produced a crest over 6 feet above flood stage.

Minor flooding occurred on the Little Miami River on the 3d from heavy local thundershowers falling on ground already saturated. No damage was reported.

As the month began, the Wabash River was above flood stage from Montezuma to below Terre Haute, Ind., and the White River was above flood stage

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

AUGUST 1958

at Petersburg, Ind. Heavy rains on the 1st and 2d caused further sharp rises at other points with additional flooding along these and other streams in Indiana. Additional heavy rains on the 14th and 15th caused additional flooding on the Wabash in the reach between Lafayette and Terre Haute, Ind. Some damage was reported to crops.

There was some flooding in the beginning of the month along the main stem of the Ohio in the reach below the mouth of the Wabash River to Dam 50 at Fords Ferry, Kentucky. This flooding was due to frequent heavy showers during July and to high flow from the Wabash.

Arkansas Basin.--The flooding on the North Canadian River in Oklahoma between the 20th and 22d was due to locally heavy rains on the 19th and 20th. Twenty-five bridges, mostly on farm and secondary roads, were washed out in the Seminole area. There

was some evacuation of families from homes on small creeks at Wewoka and Seminole, and several automobiles were washed from roads in the area of heavy rains. There were minor livestock losses.

The Arkansas River was above flood stage at Great Bend, Kans., from July 28 to August 2 and at Hutchinson, Kans., from July 28 to August 4. The crest of 9.0 feet at Hutchinson on the 2d was a near record stage.

WEST GULF OF MEXICO DRAINAGE

Locally heavy showers on the 10th and 11th in the extreme upper Nueces and the upper Frio Basins caused flash flooding in the upper portions of these basins. Rainfall ranged from 1 to 3 inches, with the heaviest amount of 3.9 inches reported at Leakey, Tex.

FLOOD STAGE DATA

(All dates in August unless otherwise specified)

AUGUST 1958

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
Tar: Rocky Mount, N. C.	9	28	1/	9.3	28
Tarboro, N. C.	19	31	1/	19.5	31
Greenville, N. C.	13	30	Sept. 3	14.3	Sept 1
Neuse: Smithfield, N. C.	13	27	29	17.7	28
Goldsboro, N. C.	14	31	Sept. 2	16.3	Sept. 1
EAST GULF OF MEXICO DRAINAGE					
Pearl: Jackson, Miss.	18	1	4	18.9	3
Bogalusa, La.	15	3	5	15.3	4
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Sagamon: Riverton, Ill.	13	July 13	15	17.9 21.3	July 17 4
Illinois: Havana, Ill.	14	July 18	4	15.9 14.1	July 21 2
Beardstown, Ill.	14	July 16	15	16.9 16.3	July 22 3
Meramec: Pacific, Mo.	11	3	4	12.0	3
Kaskaskia: Shelbyville, Ill.	13	July 31	4	16.6	2
Vandalia, Ill.	18	2	7	22.2	4
Carlyle, Ill.	21	July 19	16	24.8	7
New Athens, Ill.	25	12	15	25.4	14
Mississippi: Alton, Ill.	21	2	5	22.4	4
Chester, Ill.	27	3	7	28.5	5
Missouri Basin					
Nishnabotna: Hamburg, Iowa	18	6	6	22.1	6
Tarkio: Fairfax, Mo.	17	6	6	19.0	6
Platte: Agency, Mo.	20	July 31	1	21.1	1
South Fork Republican: Benkelman, Nebr.	6	16	16	8.35	16
Little Blue: DeWeese, Nebr.	6	16	16	7.6	16
Blue: Kansas City, Mo.	21	16	16	21.6	16
Mill Creek: Paxico, Kans.		21	21	21.6	21
Stranger Creek: Tonganoxie, Kans.	23	July 31	3	29.5	1
Grand: Chillicothe, Mo.	24	July 31	2	29.1	1
Sumner, Mo.	26	July 31	5	33.0	2
Brunswick, Mo.	12	July 30	6	21.1	3
Chariton: Novinger, Mo.	20	July 30	2	23.0	1
Prairie Hill, Mo.	17	July 31	2	20.2	1
Lamine: Clifton City, Mo.	19	1	1	22.4	1
Sac: Stockton, Mo.	18	1	1	18.0	1
Pomme de Terre: Hermitage, Mo.	15	1	1	15.5	1
South Grande: Brownington, Mo.	19	1	7	28.25	4
Marais des Cygnes: La Cygne, Kans.	25	1	3	27.6	2
Osage: Schell City, Mo.	25	July 13	6	36.4	July 20
Osceola, Mo.	22	July 18	2	33.8	July 20
St. Thomas, Mo.	23	July 19	5	27.3 27.95	July 23 2

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
Mississippi System (Cont'd.) Missouri Basin (Cont'd.)					
Missouri: Lexington, Mo.	22	July 31	2	23.7	Aug. 1
Waverly, Mo.	18	July 31	4	23.0	Aug. 1
Booneville, Mo.	21	1	5	24.8	Aug. 1
Jefferson City, Mo.	23	1	6	26.1	Aug. 1
Ohio Basin					
Elk: Sutton, W. Va.	25	8	8	25.1	8
Clay, W. Va.	18	8	9	20.0	9
Little Kanawha: Glenville, W. Va.	23	8	11	26.9	9
Creston, W. Va.	20	9	10	23.5	9
Paint Creek: Bourneville, Ohio	10	3	4	16.3	3
Scioto: Piketon, Ohio	16	4	5	20.0	4
Little Miami: Milford, Ohio	12	3	3	12.5	3
Sugar Creek: Crawfordsville, Ind.	8	3	3	11.25	3
Embarass: Ste. Marie, Ill.	18	1	6	18.5	4
East Fork: Seymour, Ind.	14	4	4	16.1	4
White: Anderson, Ind.	10	3	3	10.9	3
Spencer, Ind.	14	2	3	16.4	2
Edwardsport, Ind.	15	3	9	18.6	5
Petersburg, Ind.	16	July 23	10	19.0	8
Elliston, Ind.	18	2	8	21.55	4
Skillet Fork: Wayne City, Ill.	15	2	3	16.7	3
Wabash: Lafayette, Ind.	11	16	19	17.1	17
Covington, Ind.	16	17	20	19.6	18
Montezuma, Ind.	14	1	6	19.7	4
Terre Haute, Ind.	14	17	21	16.6 14.9	5 21
Vincennes, Ind.	16	4	9	16.7	8
Mt. Carmel, Ill.	17	2	11	19.4	11
New Harmony, Ind.	15	11	11		
Ohio: Shawneetown, Ill.	33	23	2		
Fords Ferry, Ky., Lock 50	34	22	4	38.6	29
Cairo, Ill.	40	July 22	10	43.8 42.7	July 27 6
Arkansas Basin					
North Canadian: Beaver, Okla.	11	20	21	9.5	21
Woodward, Okla.	10	21	22	10.1	22
Arkansas: Great Bend, Kans.	8	July 28	2	11.5	July 30
Hutchinson, Kans.	6	July 28	4	9.0	2
* Provisional 1/ Continued at end of month					

* Provisional
1/ Continued at end of month

Average monthly values

AUGUST 1958

ATHENS, GA. (1987 MB.)										BARROW, ALASKA (1008 MB.)										BARTER IS., ALASKA (1007 MB.)										BETHEL, ALASKA * (1006 MB.)										BISMARCK, N. DAK. (954 MB.)									
SURFACE	31	246	20.7	94	328	1.5	31	8	4.9	96	89	4.8	31	15	5.8	96	76	3.1	9	4	9.4				31	505	14.8	72	94	1.1																			
1,000--	31	127			31		31	74	4.3	96	89	5.6	31	68	6.3	95	80	3.8	9	52	8.6				31																								
950--	31	577	23.6	73	304	3.6	31	497	5.9	88	122	6.6	31	495	9.3	81	98	5.0	9	478	7.2				31	501		121	2																				
900--	31	1,048	21.2	69	282	2.5	31	937	5.1	82	131	7.1	31	941	8.1	71	108	4.4	9	519	5.2				31	1,004	20.1	47	230	7.3																			
850--	31	1,541	17.8	72	276	3.8	31	1,403	3.0	76	145	7.7	31	1,410	5.2	67	137	2.7	9	1,385	3.2				31	1,495	17.9	43	263	9.9																			
800--	31	2,057	14.3	71	275	5.6	31	1,891	3.3	75	158	7.5	31	1,902	2.1	63	190	1.9	9	1,874	.4				31	2,012	15.0	42	277	12.0																			
750--	31	2,598	10.4	62	282	6.2	31	2,408	- 2.6	69	161	9.5	31	8,418	- 3.3	61	225	1.9	9	2,391	- 1.7				31	2,554	11.1	44	286	13.9																			
700--	31	3,174	8.2	53	274	5.0	31	2,953	- 5.6	64	164	9.5	31	2,969	- 4.6	58	225	2.7	9	2,937	- 3.8				31	3,127	6.9	48	298	16.6																			
650--	31	3,781	4.7	53	271	5.4	31	3,527	- 9.1	60	168	11.4	31	3,544	- 7.9	51	225	2.9	9	3,512	- 6.4				31	3,727	2.4	49	304	20.0																			
600--	31	4,431	1.2	46	273	5.6	31	4,147	-12.7	57	174	12.0	31	4,168	-11.6	46	234	4.0	9	4,143	- 9.5				31	4,373	- 1.8	46	302	23.3																			
550--	31	5,124	- 2.4	42	276	6.4	31	4,798	-17.1	56	178	13.2	31	4,823	-16.0	44	233	4.4	9	4,801	-13.7				31	5,055	- 6.2	40	296	25.5																			
500--	31	5,878	- 7.0	42	275	7.9	31	5,514	-21.9	57	189	15.3	31	5,541	-20.8	41	236	6.4	9	5,529	-18.6				31	5,801	-11.1	37	294	27.6																			
450--	31	6,693	-12.0	39	277	8.9	31	6,275	-27.4	56	197	16.3	31	6,298	-26.1	39	241	6.8	9	6,300	-23.8				31	6,596	-16.4	35	292	29.9																			
400--	31	7,586	-18.0	39	281	10.4	31	7,123	-33.6	56	187	15.3	31	7,156	-32.2	39	241	8.1	9	7,158	-39.2				31	7,445	-22.6	36	293	32.8																			
350--	31	8,392	-23.2	37	283	12.7	31	7,848	-40.3	53	190	19.4	31	8,418	-39.3	39	251	9.1	9	8,099	-35.9				31	8,392	-36.9	33	292	36.9																			
300--	30	9,669	-33.1		283	15.3	31	9,079	-47.5		192	20.9	31	9,123	-47.1		257	9.5		9,154	-43.0				31	9,524	-38.5		295	36.8																			
250--	30	10,926	-42.4		281	18.4	31	10,268	-52.6		184	16.5	31	10,311	-54.1		256	9.7	9	10,367	-48.9				31	10,753	-47.5		293	38.1																			
200--	30	12,400	-53.1		283	20.7	30	11,722	-46.6		179	10.2	31	11,757	-48.6		228	6.8	9	11,839	-47.2				31	12,205	-53.5		300	47.5																			
175--	30	13,250	-58.5		293	15.1	30	12,609	-45.9		174	6.6	30	12,645	-47.0		229	5.6	9	12,724	-46.7				31	13,061	-55.5		300	45.7																			
150--	30	14,207	-63.6		284	12.0	30	13,636	-45.9		166	5.0	30	13,688	-46.6		226	4.8	8	13,733	-46.3				30	14,043	-57.8		295	37.4																			
125--	30	15,315	-67.6		274	10.1	30	14,850	-45.9		155	3.3	30	14,878	-46.4		219	4.6	8	14,942	-47.5				30	15,188	-59.7		296	30.4																			
100--	30	16,659	-67.4		277	5.6	30	16,334	-47.4		149	2.7	27	16,356	-46.1	46	0			16,418	-47.9				30	16,585	-58.9																						
80--	29	18,613	-63.8		51	3.8	30	17,820	-45.7		134	2.1	26	17,843		198	1.9			17,884	-47.5				29	17,975	-57.7																						
60--	29	19,796	-59.2		84	13.0	30	19,737	-45.9		78	2.7	23	19,762	-45.9		113	1.3	7	19,784	-47.2				29	19,820	-54.5																						
40--	29	20,947	-56.4		89	18.4	30	20,950	-46.1		97	2.7	21	20,975	-45.7		94	2.3	7	20,992	-47.0				29	20,994	-52.3																						
50--	29	22,374	-53.5		92	19.4	29	22,437	-46.0		91	4.2	18	22,472	-45.2		84	4.2	6	22,478	-46.5				26	22,440	-50.1																						
30--	29	24,236	-50.7		94	19.8	29	24,352	-45.9		94	6.9	15	24,408	-44.2		82	7.1	6	24,391	-45.6				24	24,339	-47.0																						
25--	27	25,428	-49.2		85	21.1	29	25,566	-45.5		102	7.3	12	25,615	-43.6		93	8.3		25,607	-45.3				24	25,552	-45.3																						
20--	22	26,891	-47.9		87	26.2	20	26,987	-45.9																21	27,048	-43.4																						
15--	17	28,794	-45.5		85	30.5	7	28,724	-46.3																11	28,974	-41.6																						

BOISE, IDAHO (1916 MB.)										BROWNSVILLE, TEX. (1012 MB.)										BUFFALO, N. Y. (992 MB.)										BURRWOOD, LA. (1014 MB.)										CAPE HATTERAS, N. C. (1013 MB.)									
SURFACE	31	868	18.4	52	144	4.4	31	70	24.7	96	155	3.8	31	182	16.5	86	231	3.6	29	3	26.9	86	286	2.7	31	24.7	91	231	0.0																				
1,000--	31	106					31	113	26.1	87	162	9.3	31	115					29	124	26.5	82	263	3.1	31	117	24.8	87	244	2.0																			
950--	31	552					31	563	23.9	81	174	19.0	31	555	17.4	69	259	7.9	29	579	23.4	80	245	3.4	31	564	22.6	81	251	2.2																			
900--	31	1,022	21.4	40	184	1.1	31	1,038	21.9	65	174	17.4	31	1,015	14.8	65	271	10.8	29	1,046	20.2	79	245	3.8	31	1,037	19.9	76	250	6.6																			
850--	31	1,518	22.0	31	324	4.0	31	1,533	21.9	67	168	13.6	31	1,497	11.9	65	270	14.3	29	1,539	17.4	73	236	4.0	31	1,529	16.9	75	249	7.7																			
800--	31	2,040	18.5	34	313	4.2	31	2,053	16.8	45	155	8.7	31	2,003	9.1	62	274	16.5	29	2,055	14.4	65	250	4.8	31	2,044	13.9	70	245	9.0																			
750--	31	2,586	18.1	38	290	5.5	31	2,598	16.8	42	132	5.8	31	2,532	8.3	48	275	19.4	29	2,597	13.6	61	273	3.6	31	2,582	11.0	66	242	11.0																			
700--	31	3,168	9.9	43	271	9.3	31	3,178	10.1	44	131	4.2	31	3,100	4.3	39	277	21.5	29	3,174	8.7	52	290	7.7	31	3,159	8.8	61	244	12.1																			
650--	31	3,773	5.1	46	258	12.0	31	3,781	6.3	44	112	2.3	31	3,697	1.2	37	275	24.2	29	3,785	5.4	51	302	3.3	31	3,760	4.8	48	244	13.3																			
600--	31	4,427	2.5	50	253	15.1	31	4,442	2.3	41	117	2.3	31	4,341	-2.1	33	273	26.4	29	4,435	1.9	49	313	4.6	31	4,417	1.1	49	245	14.4																			
550--	31	5,110	-4.5	43	251	16.1	31	5,132	-1.9	35	71	1.9	31	5,019	-6.2	31	212	28.3	29	5,129	-2.0	45	314	3.4	31	5,105	-2.7	41	245	14.4																			
500--	31	5,863	-9.4	35	253	15.9	31	5,891	-6.3	32	81	1.8	31	5,768	-10.8		273	30.3	29	5,884	-6.4	44	317	4.2	31	5,862	-7.1	39	245	16.7																			
450--	31	6,664	-14.8		251	17.2	31	6,698	-11.4	31	70	5.8	31	6,566	-16.4		273	32.9	29	6,696	-11.6	37	320	4.6	31	6,671	-11.9	34	244	18.8																			
400--	31	7,471	-21.4		251	21.3	31	7,505	-17.8	31	54	7.7	31	7,446	-22.7	-17.3		273	34.7	29	7,592	-18.0	35	331	5.4	31	7,568	-17.5	37	242	18.8																		
350--	31	8,324	-28.4		247	21.1	31	8,587	-24.3	31	54	8.2	31	8,482	-29.2		271	38.2	29	8,571	-28.9	31	332	4.8	31	8,548	-28.4	47	244	19.0																			
300--	31	9,611	-37.0		234	19.6	31	9,692	-32.6	31	47	8.5	31	9,492	-37.8		270	42.1	29	9,676	-33.6	336	5.4	31	9,660	-32.6	35	240	20.0																				
250--	31	10,848	-45.8		238	21.5	31	10,950	-42.4	31	43	13.6	31	10,727	-46.1		276	46.0	29	10,931	-43.3	346	5.8	31	10,919	-42.3	34	242	22.2																				
200--	31	12,309	-53.8		249	34.3	31	12,421	-53.9	39	12.8	30	12,187	-52.0		278	52.4	28	12,398	-54.2	2	6.0	31	12,391	-53.4	254	22.2	25	245	22.2																			
175--	31	13,159	-57.7		253	35.3	31	13,266	-60.0	43	11.8	30	13,048	-58.3		277	48.5	28	13,243	-60.3	350	7.5	31	13,241	-58.7	255	21.1	21	245	21.1																			
150--	31	14,125	-61.0		256	30.6	31	14,215	-66.0	38	14.1	30	14,030	-56.8		273	40.6	28	14,191	-66.3	14	6.8	31	14,198	-63.5	247	18.8	14	245	18.8																			
125--	30	15,259	-63.5		271	21.5	31	15,307	-71.3	38	14.1	30	15,180	-58.6		274	32.4	28	15,282	-70.6	43	6.0	31	15,307	-66.6	248	14.5	14	245	14.5																			
100--	30	16,617	-64.0		28	16,622	71.6			36	16.5	30	16,582	-58.1		273	23.3	27	16,609	-69.1	49	7.7	31	16,657	-66.0	254	8.8	14	245	8.8																			
80--	29	17,990	-61.7		26	17,961	-66.7			81	20.7	30	17,992	-56.4		275	13.7	27	17,952	-66.2	29	11.0	30	18,005	-62.2	255	12.2	14	245	12.2																			
60--	28	19,788	-57.4		26	19,726	-60.9			83	26.4	30	19,832	-52.8		269	3.4	26	19,719	-60.2	85	20.7	30	19,821	-57.5	88	12.2	14	245	12.2																			
40--	28	20,946	-55.4		25	20,866	-58.0			86	33.6	30	21,014	-51.1		207	7.7	26	20,865	-57.5	89	26.6	30	20,982	-54.5	91	17.0	14	245	17.0																			
30--	25	22,383	-53.0		25	22,283	-54.6			85	38.4	30	22,471	-49.4		100	4.4	26	22,284	-54.7	90	29.5	30	22,422	-51.5	94	20.0	14	245	20.0																			
20--	22	24,253	-49.0		24	24,141	-51.0			86	41.1	30	24,368	-47.0		90	9.7	25	24,142	-51.6	92	31.2	29	24,304	-48.9	92	21.1	14	245	21.1																			
15--	20	25,455	-48.0		22	25,338	-48.6			82	36.5	29	25,581	-45.3		86	11.6	24	25,335	-49.0	85	35.3	28	25,504	-48.9	97	22.2	14	245	22.2																			
10--	20	26,938	-46.3		14	26,807	-46.8			26	29.0	27	29,076	-43.4		86	12.6	15	26,789	-47.0	82	35.9	27	26,986	-45.1	84	25.0	14	245	25.0																			
5--																																																	
1--																																																	
0--																																																	

See reference note at end of table

* Bethel data terminated August 9, 1958,
pending relocation.

Average monthly values

AUGUST 1958

FLINT, MICH. (986 MB.)										PORT WORTH, TEX. (993 MB.)										GLASGOW, MONT. (933 MB.)										GRAND JUNCTION, COLO. (854 MB.)										GREAT FALLS, MONT. (889 MB.)									
SURFACE	31	234	14.7	89	214	2.3	31	180	24.9	76	184	2.3	31	696	16.0	55	84	1.7	30	1,474	20.0	42	120	9.5	31	1,123	16.0	55	237	9.3																			
1,000--	31	114					31	115					31	97					30	82					31	101																							
950--	31	556	17.5	71	253	7.3	31	569	25.3	64	221	11.0	31	537					30	532					31	543																							
900--	31	1,014	15.5	63	277	9.5	31	1,042	23.1	60	223	10.2	31	1,004	20.3	42	225	1.3	30	1,009					31	1,012																							
850--	31	1,497	12.7	58	278	11.8	31	1,539	19.8	62	240	6.4	31	1,496	18.7	36	287	6.4	30	1,511	20.6	40	120	9.5	31	1,504	18.5	42	261	9.5																			
800--	31	2,005	10.4	49	283	14.9	31	2,058	16.0	65	274	2.3	31	2,012	15.1	40	292	10.4	30	2,037	21.0	35	138	6.0	31	2,021	15.3	42	283	9.9																			
750--	31	2,540	7.7	44	284	16.9	31	2,598	12.2	63	341	2.5	31	2,553	11.0	44	294	13.7	30	2,589	17.8	37	228	2.3	31	2,559	11.4	44	283	11.2																			
700--	31	3,106	4.8	41	280	19.8	31	3,180	8.7	57	13	3.1	31	3,126	6.5	48	295	17.4	30	3,178	13.5	41	268	4.2	31	3,137	7.1	48	277	13.4																			
650--	31	3,706	1.5	42	283	22.1	31	3,787	5.3	49	15	2.1	31	3,726	2.1	51	287	20.5	30	3,792	8.6	46	283	6.0	31	3,738	2.8	48	269	15.5																			
600--	31	4,348		41	282	22.9	31	4,400	7	41	5	1.5	31	4,372		47	286	23.5	30	4,454		54	285	8.3	31	4,387		1.3	47	267	18.8																		
550--	31	5,029	-6.3	38	282	24.2	31	5,131	-2.0		20	1.5	31	5,050	-6.4	44	283	25.6	30	5,142	-2.2	59	287	10.8	31	5,066	-5.7	46	267	22.7																			
500--	30	5,773	-11.1	1	280	27.2	31	5,889	-6.3		5	2.5	31	5,797	-11.3	38	286	27.5	30	5,902	-7.7	55	295	11.2	31	5,817	-10.9	42	272	24.6																			
450--	30	6,572	-16.4		279	30.1	31	6,698	-11.4		353	3.6	31	6,589	-16.9	34	285	28.5	30	6,710	-12.4	42	291	12.0	31	6,611	-16.3	38	273	26.2																			
400--	30	7,452	-22.6		280	33.0	31	7,598	-17.7		4	5.4	31	7,473	-23.0	35	280	31.6	30	7,606	-18.2		298	15.1	31	7,496	-22.7	35	275	30.3																			
350--	30	8,419	-29.6		280	36.7	31	8,584	-24.8		358	7.3	31	8,438	-30.1	36	279	30.5	30	8,591	-25.1		284	18.0	31	8,462	-30.0		272	33.8																			
300--	30	9,501	-37.8		281	40.2	31	9,687	-33.3		351	9.5	31	9,516	-38.7		284	38.0	30	9,693	-33.6		276	23.5	31	9,541	-38.5		272	37.8																			
250--	30	10,735	-46.2		284	44.6	31	10,942	-42.9		342	11.8	31	10,745	-47.4		278	45.4	30	10,947	-43.4		271	29.1	31	10,770	-47.2		273	44.4																			
200--	30	12,196	-52.5		285	47.9	31	12,411	-53.8		338	15.3	30	12,198	-53.8		279	48.1	30	12,415	-53.9		271	30.1	31	12,224	-53.7		270	47.2																			
175--	30	13,055	-54.6		286	44.8	31	13,257	-50.7		338	15.1	29	13,044	-56.0		276	48.1	30	13,263	-58.1		270	26.8	31	13,078	-56.5		270	45.8																			
150--	30	14,036	-57.4		283	38.0	31	14,208	-65.6		348	12.4	30	14,026	-57.5		274	48.1	30	14,217	-64.6		279	20.7	31	14,053	-58.3		272	38.6																			
125--	30	15,183	-59.6		281	31.4	31	15,304	-69.5		357	8.3	29	15,174	-59.0		270	48.1	30	15,319	-68.3		284	14.1	30	15,198	-60.1		274	29.9																			
100--	30	16,580	-59.0		282	23.3	31	16,636	-68.0		39	6.4	25	16,565	-58.3		270	48.1	30	16,658	-67.3		292	5.8	25	16,587	-59.8		277	20.7																			
80--	30	17,985	-57.4		287	14.3	31	17,990	-64.3		70	9.7	25	17,974	-57.0		270	48.1	30	18,018	-62.9		81	4.0	22	17,983	-57.9		287	11.6																			
60--	30	19,818	-53.8		294	4.6	31	19,772	-59.0		87	16.9	24	19,809	-54.9		270	48.1	30	19,810	-58.3		79	8.5	21	19,805	-55.3		335	2.5																			
50--	29	20,998	-51.7		45	.3	30	20,922	-56.7		87	19.8	24	20,980	-52.9		270	48.1	30	20,967	-55.7		78	11.4	21	20,973	-53.8		5	2.5																			
40--	28	22,451	-50.0		83	6.0	30	22,353	-54.1		93	23.1	24	22,426	-50.7		270	48.1	30	22,401	-52.5		86	12.6	21	22,413	-51.6		68	2.5																			
30--	28	24,342	-47.7		81	9.5	29	24,208	-50.8		86	26.0	22	24,319	-47.9		270	48.1	30	24,275	-49.7		88	15.7	21	24,297	-48.0		67	1.7																			
25--	28	25,508	-46.2		87	11.0	28	25,402	-49.0		86	29.9	19	25,518	-46.9		270	48.1	30	25,474	-47.8		84	17.2	13	25,491	-46.4		74	6.2																			
20--	25	27,045	-44.1		84	13.7	27	26,774	-46.5		89	24.4	17	26,978	-46.5		270	48.1	30	26,952	-47.0		88	21.7	7	26,949	-44.7																						
15--	21	28,985	-41.9		82	16.7	25	28,793	-43.8		88	35.9					270	48.1	30	28,875	-44.1																												
10--	13	31,746	-37.9				18	31,521	-39.8		90	40.6																																					
7--							7	33,932	-38.9																																								

See reference note at end of table

Average monthly values

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LAS VEGAS, NEV. (1938 MB.)						LITTLE ROCK, ARK. (1005 MB.)						McGRATH, ALASKA (995 MB.)						MEDFORD, OREG. (969 MB.)						MIAMI, FLA. (1014 MB.)							
SURFACE	31	660	27.7	35	215	5.6	31	79	22.2	93	241	0.5	31	103	9.4	93	226	1.3	31	401	16.3	74	267	0.1	31	4	25.5	89	210	0.7	
1,000--	31	65					31	124	22.5	90	228	1.7	31	61			233	1.7	31	132					31	130	26.4	81	166	1.1	
950--	31	524					31	577	22.6	76	228	4.6	31	486	10.0	79	218	5.2	31	578	18.8	60	283	2.5	31	582	23.8	77	181	3.4	
900--	31	1,009	29.6	27	219	7.1	31	1,043	20.0	74	230	3.6	31	937	7.4	75	209	7.1	31	1,037	18.9	51	280	2.1	31	1,054	20.8	77	185	4.0	
850--	31	1,516	26.4	29	234	5.6	31	1,405	20.1	73	230	3.3	31	1,327	7.7	77	200	7.7	31	1,327	17.4	49	283	1.1	31	1,547	18.0	66	187	4.0	
800--	31	2,046	22.2	33	223	6.0	31	2,051	14.1	60	274	2.3	31	1,896	1.1	78	202	6.8	31	2,043	15.7	39	168	1.3	31	2,064	15.1	60	206	4.2	
750--	31	2,599	17.5	39	192	6.2	31	2,594	11.3	49	309	2.1	31	2,410	- 2.0	77	195	6.6	31	2,586	12.6	37	211	6.8	31	2,603	12.0	57	227	4.0	
700--	31	3,187	12.6	46	168	5.8	31	3,168	8.1	43	314	4.2	31	2,959	- 5.0	74	186	7.7	31	3,163	8.6	42	215	9.3	31	3,183	8.8	54	225	4.2	
650--	31	3,799	7.8	50	152	7.3	31	3,775	4.6	43	320	4.6	31	3,533	- 8.0	68	187	7.7	31	3,768	4.7	35	213	11.8	31	3,790	5.6	50	225	4.2	
600--	31	4,499	2.8	51	152	8.3	31	4,426	9	43	313	4.8	31	4,157	- 11.7	65	185	7.9	31	4,419	- 6		218	13.6	31	4,444	1.9	48	240	4.0	
550--	31	5,148	- 2.3	50	165	7.3	31	5,118	- 3.0	37	295	6.6	31	4,814	-15.7	62	187	6.4	31	5,103	- 4.0		221	14.5	31	5,131	- 2.2	46	253	2.7	
500--	31	5,908	- 6.8	48	202	6.4	31	5,870	- 7.3		305	6.6	31	5,532	-20.5	59	177	6.9	31	5,857	- 9.4		225	16.1	31	5,892	- 6.7	45	250	2.1	
450--	31	6,715	-11.6	35	220	6	30	6,881	-12.2		316	8.1	31	6,265	-6.8	58	178	6.6	31	6,509	-15.7		221	21.1	31	6,699	-11.0	43	266	1.4	
400--	31	7,617	-17.6	30	231	8.5	30	7,577	-18.4		316	10.1	31	7,145	-32.3	57	179	4.6	31	7,544	-21.7		221	23.3	31	7,660	-17.9	39	281	5	
350--	31	8,603	-24.8		235	10.2	30	8,560	-25.4		317	13.6	31	8,073	-39.3		196	3.6	31	8,514	-28.9		226	24.2	31	8,584	-24.9	37	46	1.1	
300--	31	9,705	-33.4		225	13.7	30	9,660	-33.7		312	14.3	31	9,111	-47.2		225	3.8	31	9,599	-37.0		225	28.1	31	9,687	-33.1		56	3	
250--	31	10,960	-42.9		225	18.2	30	10,914	-43.4		313	18.2	31	10,302	-53.4		270	7.1	31	10,838	-45.2		230	29.3	31	10,944	-43.0		53	3.4	
200--	31	12,430	-53.7		231	22.5	30	12,381	-54.0		313	21.7	31	11,753	-48.3		269	10.1	31	12,305	-52.6		226	29.3	31	12,410	-54.5		64	5.6	
150--	31	13,778	-59.5		232	23.5	30	13,228	-59.6		320	21.3	30	12,634	-47.3		246	6.9	31	13,161	-56.1		229	29.5	31	13,254	-60.6		70	6.4	
100--	31	14,729	-65.7		237	19.2	29	14,175	-65.7		317	17.8	29	13,295	-47.7		238	6.4	31	14,161	-58.3		234	28.1	31	14,254	-61.6		67	8.1	
50--	31	15,326	-69.3		252	11.0	29	15,281	-68.2		319	11.8	29	14,857	-47.6		240	0	31	15,268	-62.1		240	30	31	15,295	-70.1		68	9.3	
0--	31	16,657	-69.0		174	1.5	29	16,620	-67.8		340	8.1	29	16,337	-47.6		258	2.3	31	16,645	-62.3		252	13.4	31	16,618	-70.3		74	12.8	
90--	31	18,002	-65.1		89	6.0	29	17,975	-64.0		24	6.9	28	17,811	-47.5		166	2.3	31	18,029	-60.7		244	3	31	17,952	-67.4		78	21.5	
80--	31	19,781	-59.3		88	10.4	27	19,763	-58.7		78	11.6	27	19,712	-47.5		154	2.7	31	19,833	-57.6		93	3.6	31	19,713	-60.9		87	32.2	
70--	31	20,929	-56.7		85	12.8	27	20,915	-56.4		80	15.7	27	20,914	-48.4		134	2.3	31	20,991	-55.6		81	7.5	30	20,854	-57.9		91	36.8	
60--	31	22,354	-54.3		86	16.5	26	22,345	-53.7		92	18.6	27	22,382	-48.4		108	3	31	22,421	-53.3		69	9	30	22,271	-54.5		93	38.3	
50--	31	23,776	-51.7		85	10.9	25	24,202	-50.9		85	20.4	25	24,272	-48.4		107	4.2	31	24,284	-51.0		81	10.1	29	24,127	-50.5		89	37.3	
40--	31	25,395	-49.7		89	21.1	21	25,395	-49.7		83	20.9	22	25,422	-48.4		95	5.4	18	26,934	-48.1		88	12.4	11	26,800	-46.3		87	40.4	
30--	31	26,862	-47.7		16		26,864	-47.5					9	28,850	-45.6																

See reference note at end of table

RAWINSONDE DATA

Average monthly values

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MIDLAND, TEX. (916 MB.)										MONTGOMERY, ALA. (1008 MB.)										NANTUCKET, MASS. (1013 MB.)										NASHVILLE, TENN. (995 MB.)										N. Y. INT. AP. IDLEWILD (1013 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																				
					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed																									
SURFACE	31	871	22.1	69	139	1.9	31	61	22.5	91	275	0.9	31	14	19.3	89	247	2.9	31	177	20.1	94	233	1.5	31	5	20.7	85	289	2.7																			
1,000---	31	100					31	130	23.0	87	264	1.3	31	121	19.3	82	266	4.2	31	129					31	118	19.9	80	298	4.0																			
950----	31	554					31	581	23.3	72	267	3.3	31	560	18.0	69	273	6.9	31	575	22.0	75	266	5.0	31	560	18.2	68	305	6.4																			
900----	31	1,026	23.5	59	169	6.4	31	1,053	20.4	71	248	3.6	31	1,025	15.6	68	270	10.1	31	1,044	19.3	71	274	5.6	31	1,022	15.8	68	279	7.5																			
850----	31	1,526	22.6	50	187	11.2	31	1,545	17.0	72	241	4.0	31	1,501	12.1	62	270	12.8	31	1,534	16.7	61	270	5.8	31	1,505	12.9	70	267	10.4																			
800----	31	2,051	19.1	53	164	5.6	31	2,060	13.8	68	241	3.3	31	2,016	10.9	48	267	16.7	31	2,049	14.3	54	280	6.0	31	2,013	10.7	61	266	13.7																			
750----	31	2,600	15.1	55	94	3.8	31	2,599	11.0	63	247	2.7	31	2,550	8.7	43	270	19.8	31	2,585	11.2	51	283	6.9	31	2,546	8.5	50	269	16.7																			
700----	31	3,184	11.0	59	60	5.8	31	3,177	8.0	56	277	2.1	31	3,120	5.7	42	265	20.9	31	3,165	7.7	52	283	7.7	31	3,117	5.4	52	272	18.2																			
650----	31	3,796	6.8	57	60	6.9	31	3,786	4.7	49	307	3.4	31	3,722	2.6	42	258	24.2	31	3,768	4.2	47	295	8.7	31	3,715	2.4	46	272	20.9																			
600----	31	4,452	2.7	50	51	5.6	31	4,435	1.4	48	302	5.6	30	4,369	-1.0		256	26.8	31	4,420	-4.1	41	293	9.9	31	4,362	-1.3	39	269	20.9																			
550----	31	5,145	-1.4	45	61	4.2	31	5,123	-2.4	43	285	4.6	30	5,051	-4.8		255	27.7	31	5,106	-3.2	33	294	10.6	31	5,041	-5.3	38	273	22.9																			
500----	31	5,905	-5.8	42	80	3.6	31	5,884	-6.6	39	285	6.2	30	5,802	-9.4		254	29.7	31	5,863	-7.5		291	11.8	31	5,793	-9.9	37	269	25.8																			
450----	31	6,720	-10.6	34	99	3.8	31	6,697	-11.7	37	284	6.8	30	6,602	-14.5		252	32.0	31	6,670	-12.9	27	288	13.7	31	6,591	-15.0		261	28.3																			
400----	31	7,621	-16.4		66	4.0	31	7,595	-17.6	32	297	7.1	39	7,493	-20.5		247	37.4	31	7,564	-19.3	31	291	14.9	31	7,480	-20.9	35	257	32.4																			
350----	31	8,612	-23.1		30	5.4	31	8,582	-24.6		304	9.5	30	8,468	-27.3		250	37.8	31	8,545	-25.8		294	17.0	31	8,457	-27.7	41	255	36.7																			
300----	31	9,723	-31.3		11	6.0	31	9,686	-32.8		298	9.7	30	9,560	-35.3		253	43.1	31	9,643	-34.1		298	21.3	31	9,544	-35.4		253	41.3																			
250----	31	10,989	-41.0		358	11.0	31	10,944	-42.3		294	11.2	30	10,806	-44.6		260	39.4	31	10,896	-43.5		305	22.5	31	10,790	-44.5		257	46.0																			
200----	31	12,468	-52.8		351	10.6	31	12,419	-53.2		298	13.9	30	12,270	-53.6				31	12,365	-53.4		324	24.2	31	12,254	-53.5		258	48.1																			
175----	31	13,319	-59.1		349	10.4	31	13,270	-58.5		298	13.6	30	13,121	-57.8				31	13,215	-58.6		314	20.4	31	13,105	-57.6		258	45.4																			
150----	31	14,771	-65.3		4	7.7	30	14,725	-63.9		309	12.4	30	14,086	-61.1				31	14,173	-63.1		317	14.5	31	14,071	-63.0		269	52.8																			
125----	31	15,367	-70.2		8	8.1	29	15,322	-68.3		317	6.0	30	15,211	-63.0				31	15,284	-66.4		315	10.1	31	15,198	-63.3		258	35.1																			
100----	31	16,689	-70.6		48	8.1	29	16,669	-68.0		353	3.3	30	16,586	-61.1				31	16,634	-66.2		308	5.8	31	16,571	-62.1		262	31.0																			
80----	31	18,024	-66.2		71	10.8	28	18,020	-64.4		72	8.3	30	17,976	-59.7				31	17,998	-62.9		32	4.6	31	17,960	-59.1		259	26.0																			
60----	31	19,793	-60.8		79	15.9	28	19,803	-58.9		83	15.7	29	19,794	-55.6				31	19,792	-57.8		85	10.2	31	19,784	-54.8		248	10.4																			
40----	31	20,935	-57.8		86	20.0	28	20,956	-55.6		87	20.2	29	20,960	-54.0				31	20,950	-55.4		91	13.6	31	20,956	-52.9		134	2.1																			
20----	31	22,335	-54.7		88	25.0	27	22,389	-52.9		89	26.4	28	22,397	-52.5				31	22,382	-53.0		91	16.1	31	22,404	-50.9		82	8.3																			
15----	31	24,268	-51.4		87	29.5	24	24,260	-49.5		89	26.4	26	24,268	-50.5				31	24,249	-50.4		94	19.0	24	24,292	-46.8		79	14.7																			
10----	31	26,870	-47.7		84	33.4	15	26,947	-46.2		86	36.1	19	26,926	-47.1				31	27,007	-47.0		88	20.2	16	25,995	-44.6		85	12.4																			
5----	31	31,469	-44.0		83	39.2	7	31,437	-43.4		85	39.2	7	31,405	-44.3				31	31,486	-44.5		90	25.2	17	26,990	-41.3		84	12.4																			

NOME, ALASKA (1006 MB.)										NORFOLK, VA. (1013 MB.)										NORTH PLATE, NEBR. (917 MB.)										OAKLAND, CALIF. (1013 MB.)										OKLAHOMA CITY, OKLA. (969 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																				
					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed	Direction	Speed																	
SURFACE	31	7	9.2	88	295	0.9	31	9	22.7	90	259	0.3	31	848	16.8	88	195	0.3	31	8	15.2	87	298	4.0	31	392	21.1	90	141	4.0																			
1,000---	31	53			292	2.7	31	125	23.1	86	236	2.1	31	99					31	114	14.8	88	286	3.4	31	114																							
950----	31	475	8.3	82	209	1.5	31	572	21.3	79	266	6.0	31	540					31	562	18.8	81	268	5.8	31	565	23.4	72	173	6.6																			
900----	31	924	6.1	79	196	3.4	31	1,040	18.8	74	262	7.7	31	1,008	19.5	74	214	5.0	31	1,022	24.2	29	301	3.8	31	1,034	23.2	58	216	8.9																			
850----	31	1,391	3.4	79	204	4.0	31	1,529	16.1	71	255	10.6	31	1,504	21.2	50	239	7.7	31	1,519	21.4	32	248	2.1	31	1,531	20.0	50	273	4.0																			
800----	31	1,880	-6	79	213	4.0	31	2,043	13.5	66	252	11.2	31	2,028	18.7	45	265	6.6	31	2,041	18.3	30	205	3.6	31	2,052	16.9	54	301	4.6																			
750----	31	2,392	-2.2	75	210	4.8	31	2,583	10.9	58	252	13.9	31	2,575	14.9	44	289	7.7	31	2,591	14.9	28	194	6.9	31	2,596	13.5	46	320	4.0																			
700----	31	2,942	-4.8	64	206	3.6	31	3,158	7.9	53	251	15.3	31	3,160	10.8	43	296	9.5	31	3,171	11.2	30	195	8.5	31	3,177	10.6	43	343	3.8																			
650----	31	3,516	-7.9	58	223	3.6	31	3,764	-4.6	49	254	16.1	31	3,767	1.6	45	298	14.1	31	3,783	7.0	31	200	9.7	31	3,786	6.3	40	387	4.2																			
600----	31	4,141	-11.4	52	240	4.4	31	4,415	-1.0	44	250	19.6	31	4,424	-1.5	45	299	13.6	31	4,438	-2.8		203	9.5	31	4,442	-2.4	39	331	5.5																			
550----	31	4,799	-15.5	46	257	5.2	31	5,104	-3.0	42	253	20.2	31	5,108	-3.1	46	294	14.9	31	5,128	-2.2		212	9.9	30	5,133	-1.7	35	319	3.6																			
500----	31	5,518	-20.2		251	6.9	31	5,859	-7.6	42	252	21.3	31	5,868	-8.2	45	299	17.6	31	5,887	-7.7		228	11.6	30	5,895	-6.																						

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SEATTLE, WASH. (1002 MB.)										SHREVEPORT, LA. (1005 MB.)										SPOKANE, WASH. (931 MB.)										SWAN ISLAND, W. I. (1012 MB.)										TAMPA, FLA. (1014 MB.)									
SURFACE	31	125	14.3	84	124	1.9	31	76	22.7	90	177	2.9	30	722	17.2	45	190	6.0	31	10	10	27.3	89	70	8.9	31	8	24.7	91	76	1.3																		
1,000--	31	142	14.4	83	103	2.1	31	117	23.2	87	185	3.8	30	106					31	113	26.7	87	72	10.1	31	133	25.2	86	135	.5																			
950--	31	174	15.2	70	99	.9	31	571	23.6	70	223	10.1	30	552					31	560	23.7	84	88	12.2	31	584	23.1	81	226	3.3																			
900--	31	1,035	14.6	65	288	2.3	31	1,039	21.1	68	224	6.9	30	1,016	21.1	36	211	7.3	31	1,038	21.7	75	95	13.9	31	1,056	20.4	78	223	4.2																			
850--	31	1,512	12.6	59	267	1.6	31	1,532	18.0	65	240	4.4	30	1,512	18.0	32	237	10.2	31	1,512	18.2	69	105	15.1	31	1,549	17.6	73	226	4.6																			
800--	31	2,024	10.7	49	257	7.7	31	2,050	14.7	66	207	2.9	30	2,025	14.8	40	245	12.4	31	2,050	16.1	61	93	15.9	31	2,066	17.1	79	228	4.4																			
750--	31	2,559	8.7	39	250	11.6	31	2,590	11.5	59	330	3.6	30	2,562	10.4	47	247	13.2	31	2,590	12.6	52	92	15.9	30	2,607	11.7	63	197	4.0																			
700--	31	3,129	5.6	37	247	14.1	31	3,168	8.3	49	344	2.3	30	3,139	6.5	48	247	15.3	31	3,171	9.3	49	93	14.7	30	3,185	8.7	55	205	3.6																			
650--	31	3,728	2.2	37	247	16.3	31	3,773	5.0	40	336	2.3	30	3,738	2.3	51	248	16.5	31	3,773	6.0	44	94	13.0	30	3,795	5.5	50	224	3.6																			
600--	31	4,374	-1.6	34	248	18.6	31	4,426	1.5	37	1	2.7	30	4,386	-1.6	43	252	19.6	31	4,434	2.4	38	98	11.2	30	4,447	2.0	46	247	4.0																			
550--	31	5,055	-5.8	32	243	20.4	31	5,115	-2.1		334	2.7	30	5,066	-5.9	40	258	21.1	31	5,129	-1.7	35	101	10.4	30	5,142	-1.9	46	259	2.7																			
500--	31	5,695	-10.9	31	246	22.1	31	5,875	-6.4		336	3.6	30	5,815	-10.8	35	261	22.7	31	5,884	-6.5	32	100	8.9	30	5,898	-6.5	44	271	2.3																			
450--	31	5,998	-16.7	30	247	24.3	31	6,058	-13.0		342	5.8	30	6,013	-13.0	31	263	23.2	31	6,061	-11.1	32	100	8.5	30	6,170	-11.8	43	298	1.3																			
400--	31	7,481	-23.4		250	25.4	31	7,585	-17.6		352	8.8	30	7,493	-22.3	30	263	27.9	31	7,592	-1.9	32	97	6.0	29	7,602	-1.7	50	300	1.0																			
350--	31	8,443	-31.1		247	26.6	31	8,570	-24.6		344	8.7	30	8,458	-30.3		259	30.8	31	8,577	-25.1	29	91	3.4	29	8,595	-24.6	38	353	2.1																			
300--	31	9,518	-39.5		242	30.8	31	9,674	-33.0		347	9.9	30	9,535	-38.5		258	33.8	31	9,678	-33.7		84	1.5	29	9,700	-33.0	35	18	3.4																			
250--	30	10,743	-48.3		241	36.3	31	10,930	-42.7		337	10.6	30	10,764	-47.3		257	36.5	31	10,931	-43.5		301	4.0	28	10,958	-43.2		25	3.3																			
200--	30	12,189	-54.2		244	39.0	31	12,400	-53.6		330	12.2	30	12,217	-54.0		257	41.5	30	12,390	-55.3		312	7.5	27	12,423	-55.1		42	6.6																			
175--	30	13,044	-55.7		246	37.6	31	13,247	-59.4		329	14.9	30	13,071	-55.6		256	41.1	29	13,299	-61.4		294	7.1	27	13,264	-61.1		71	4.0																			
150--	30	14,074	-57.3		247	34.9	31	14,198	-65.2		337	12.2	30	14,049	-57.3		258	36.9	28	14,173	-67.7		316	5.0	26	14,208	-66.7		64	6.2																			
125--	30	15,170	-58.7		250	28.3	31	15,295	-69.9		359	6.9	30	15,195	-59.4		260	27.9	28	15,256	-72.5		53	5.4	26	15,302	-70.1		82	6.8																			
100--	30	16,572	-58.5		255	18.8	31	16,622	-69.0		134	5.8	29	16,596	-59.0		263	18.8	27	16,565	-72.7		78	15.9	26	16,625	-70.1		76	10.5																			
80--	30	17,978	-57.6		257	8.3	31	17,971	-65.0		76	10.8	28	17,999	-58.3		267	9.1	25	17,889	-68.3		81	21.9	26	17,964	-66.7		80	16.9																			
60--	30	19,803	-55.2		269	1.1	30	19,750	-59.1		85	15.9	27	19,824	-54.9		325	1.1	25	19,639	-63.2		82	32.2	26	19,729	-60.7		89	28.5																			
50--	30	20,970	-53.7		73	2.3	30	20,901	-56.3		88	21.1	27	20,994	-53.6		69	3.1	25	20,769	-60.1		86	38.2	26	20,872	-57.4		94	32.1																			
40--	29	22,407	-52.0		62	4.6	30	22,328	-53.2		94	24.4	27	22,435	-51.6		51	4.0	25	22,171	-56.8		88	42.5	26	22,294	-54.2		93	33.4																			
30--	25	24,276	-49.1		81	6.4	30	24,197	-50.0		91	27.0	23	24,314	-48.8		76	7.1	22	24,013	-51.4		91	47.4	25	24,151	-51.2		91	36.1																			
20--	19	25,477	-47.5		89	9.7	29	25,393	-48.0		88	28.7	16	25,528	-46.5		72	7.1	21	25,201	-48.8		90	53.8	22	25,341	-48.7		88	37.6																			
15--					25		25	26,873	-45.9		92	26.6							14	26,667	-46.1		85	44.8	10	26,833	-45.6																						
10--					17	31	31	556	-38.1		93	46.8							9	28,608	-42.7																												

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Average monthly values

		TATOOSH IS., WASH. (1013 MB)						TOPEKA, KANS (983 MB)						TUCSON, ARIZ. (925 MB.)						WASHINGTON, D. C. (1004 MB.)						WINNEMUCCA, N.V. (871 MB)					
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		
				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed	Direction	Speed
SURFACE	31	31	13.4	98	190	6.0	31	269	19.7	93	152	2.3	31	781	24.1	71	164	3.6	31	88	19.8	88	195	0.3	31	1,310	15.4	58	98	2.5	
1,000-	31	141	13.7	92	211	7.1	31	119										31	124	20.0	85	209	3.3	31	114						
950-	31	571	13.9	76	262	6.9	31	565	22.2	75	212	7.3	31	538				31	570	19.8	73	290	5.0	31	559						
900-	31	1,031	13.2	63	260	6.0	31	1,036	21.1	60	235	8.5	31	1,023	24.6	59	193	1.1	31	1,033	17.4	72	300	6.8	31	1,029					
850-	31	1,511	11.3	60	251	6.0	31	1,529	18.4	54	264	6.9	31	1,523	22.0	59	314	2.9	31	1,520	14.9	68	285	8.5	31	1,517	20.9	40	85	4.4	
800-	31	2,016	8.9	56	260	7.3	31	2,046	15.5	46	276	6.2	31	2,048	18.8	61	1	4.4	31	2,032	12.2	66	273	10.6	31	2,040	19.2	34	48	7.7	
750-	31	2,547	6.7	46	261	10.4	31	2,588	12.2	44	294	6.8	31	2,597	15.1	64	38	4.8	31	2,568	9.8	53	267	13.0	31	2,585	15.7	34	274	1.1	
700-	31	3,113	4.2	42	258	13.2	31	3,166	8.9	37	284	7.9	31	3,182	11.2	64	86	4.4	31	3,141	6.8	49	268	14.1	31	3,172	11.2	39	227	6.0	
650-	31	3,707	1.0	40	253	16.1	31	3,774	4.9	39	303	8.9	31	3,793	7.0	63	113	6.4	31	3,744	3.4	45	270	15.3	31	3,778	6.4	42	223	10.0	
600-	31	4,323	-2.9	36	250	18.4	31	4,424	-7	39	308	10.1	31	4,452	-2	66	115	9.5	31	4,392	-0		268	17.6	31	4,436	-1.3	48	215	14.5	
550-	31	5,024	-6.8		250	21.1	31	5,108	-3.6	41	310	11.8	31	5,144	-2.3	63	108	9.7	31	5,078	-3.9		266	19.0	31	5,118	-3.9	48	225	16.9	
500-	31	5,776	-11.5	33	249	22.1	31	5,864	-8.1	37	307	13.9	31	5,902	-6.2	52	89	7.3	31	5,830	-8.6		261	20.7	31	5,876	-8.9	41	233	17.2	
450-	31	6,562	-16.9	33	250	24.2	31	6,670	-13.2		305	15.1	31	6,714	-10.9	44	96	6.8	31	6,636	-13.8	34	262	23.8							

[illegible]

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

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Date	Sun's zenith distance								
	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
LINCOLN, NEBR.									
Air mass									
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
August									
2-----							0.75	0.66	0.57
3-----	0.64	0.74	0.84	0.99	1.19	0.99	.84	.75	.67
4-----	.59	.66	.75	.89	1.06	.82	.69	.57	.47
8-----	.45	.55	.67	.83		.86	.64		
9-----	.60	.70	.77	.92					
10-----	.62	.72		.93			.74	.66	.60
12-----				HM .82	HS 1.12	HS .85	HS .67	HS .54	
14-----	.49	.60	.74	.88	1.00	.78	.66		
16-----				1.12		.93	.79	.70	.62
17-----	.64	.72	.83	1.00	1.16				
†18-----					1.18				
Aver- ages	0.58	0.64	0.77	0.91	1.12	0.87	0.72	0.65	0.58

ALBUQUERQUE, N. MEX.									
Air mass									
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
August									
2-----	0.82	0.93	1.04	1.19	1.41	-----	-----	-----	-----
3-----					1.38	-----	-----	-----	-----
4-----					1.34	-----	-----	-----	-----
5-9-----					Cloudy	-----	-----	-----	-----
10-----					1.33	-----	-----	-----	-----
11-----					1.15	-----	-----	-----	-----
12-----					1.11	-----	-----	-----	-----
13-----	.78	.88	1.00	1.18	1.35	-----	-----	-----	-----
14-----	.77	.88	1.01	-----	-----	-----	-----	-----	-----
15-----	.79	.91	1.03	1.17	1.36	-----	-----	-----	-----
16-----	.77	.89	1.01	1.17	1.37	-----	-----	-----	-----
17-22-----					Cloudy	-----	-----	-----	-----
23-----	.82	.96	1.06	1.23	1.40	-----	-----	-----	-----
24-----	.77	.89	-----	1.37	-----	-----	-----	-----	-----
25-----	.76	.89	1.01	1.18	1.41	-----	-----	-----	-----
26-----	.78	.89	1.02	-----	1.41	1.19	1.04	0.92	0.79
27-----	.83	.95	1.07	1.23	1.38	-----	-----	-----	-----
28-29-----					Cloudy	-----	-----	-----	-----
30-----	.82	.93	1.03	1.20	1.39	1.20	1.02	.91	.80
31-----	D .63	D .73	D .89	D 1.10	D 1.35	-----	-----	-----	-----
Aver- ages	0.78	0.89	1.01	1.17	1.38	1.20	1.03	0.92	0.80

TUCSON, ARIZ.									
Air mass									
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
August									
21-----					1.33	-----	-----	-----	-----
25-----					1.29	-----	-----	-----	-----
26-----	0.78	0.86	0.98	1.13	1.38	-----	-----	-----	-----
27-----	.76	.85	.96	1.10	1.32	-----	-----	-----	-----
30-----	.65	.75	.88	1.06	1.28	1.05	0.91	0.78	0.67
‡31-----	.70	.80	.93	1.09	1.30	1.08	.88	.75	.66
Aver- ages	0.72	0.82	0.94	1.10	1.32	1.07	0.90	0.77	0.67

DILIMAN, QUEZON CITY, PHILIPPINES									
Air mass									
	4.94	3.95	2.96	1.97	*	1.97	2.96	3.95	4.94
August									
1-----			HM 0.90	HM 0.76	-----	-----	-----	-----	-----
2-----			HM .65	HM .91	HS1.19	-----	-----	-----	-----
5-----			HS .57	-----	HM1.14	-----	-----	-----	-----
6-----	0.71	0.81	.77	1.01	-----	-----	-----	-----	-----
8-----			HM .60	HM .69	HM1.12	-----	-----	-----	-----
15-----			HM .49	-----	-----	-----	-----	-----	-----
16-----				HM .73	-----	-----	-----	-----	-----
17-----				-----	-----	0.84	HM .93	HM 0.80	HM .68
19-----			HM .53	HM .57	HM .95	-----	HM .99	-----	-----
20-----				-----	1.03	-----	-----	-----	-----
24-----			HM .55	HM .69	HM .93	-----	-----	-----	-----
28-----				-----	HM1.04	-----	-----	-----	-----
Aver- ages	0.71	0.63	0.66	0.85	1.10	0.99	0.88	0.80	0.66

GUAN, M. I.									
Air mass									
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
August									
13-----				M 0.89	-----	-----	-----	-----	-----

Sun's zenith distance									
Date	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
BLUE HILL, MASS.									
Air mass									
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
August									
1-----					-----	0.96	0.79	0.69	0.61
2-----	H 0.56	H 0.62	H 0.75	H 0.95	-----	-----	-----	.80	.75
3-----	H .56	H .64	H .82	H .97	-----	-----	-----	-----	-----
5-----	.77	.87	1.00	1.17	1.37	1.19	1.01	.87	.77
9-----	.81	.92	1.06	1.19	-----	-----	-----	-----	-----
11-----	.73	.83	.97	1.12	1.39	1.19	1.01	.87	.80
12-----	.70	.79	.93	1.13	-----	-----	-----	-----	-----
18-----					-----	1.16	1.00	.91	.81
19-----	.77	.89	1.05	1.18	1.39	1.17	1.01	.87	.76
20-----	.81	.93	1.03	1.19	-----	-----	-----	-----	-----
23-----	.69	.84	.98	1.14	1.34	-----	-----	-----	-----
Aver- ages	0.71	0.81	0.95	1.12	1.37	1.13	0.96	0.84	0.75

WASHINGTON, D. C. (WBGO)									
Air mass									
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
August									
2-----	H 0.33	0.38	-----	-----	-----	-----	-----	-----	-----
5-----	.43	.50	0.66	-----	1.12	0.84	0.67	0.55	0.46
9-----	.77	.83	.93	1.03	1.35	-----	1.01	.88	.79
10-----	.53	.59	-----	-----	-----	-----	-----	-----	-----
17-----					-----	-----	.79	.65	.58
18-----				1.01	-----	1.14	.98	.86	.73
19-----				.95	1.14	-----	-----	-----	-----
29-----				.95	1.11	1.23	1.00	.85	.71
30-----	.60	.68	.81	-----	-----	-----	-----	-----	.62
Aver- ages	0.53	0.60	0.86	1.07	1.23	0.99	0.86	0.73	0.64

OMAHA, NEBR.									
Air mass									
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
August									
2-----					-----	-----	-----	-----	S 0.51
3-----	I 0.65	I 0.74	I 0.87	I 1.04	I 1.20	-----	-----	-----	-----
4-----					I 1.17	M 0.90	M 0.72	M 0.58	-----
7-----					1.04	-----	-----	-----	-----
9-----	S .63	S .77	S .89	S 1.03	M 1.13	-----	I .56	I .44	I .18
10-----	S .70	S .80	S .89	-----	-----	-----	-----	-----	-----
12-----		M .65	M .77	M .99	M 1.17	-----	-----	-----	-----
14-----	M .62	S .76	S .91	S 1.05	-----	-----	-----	-----	-----
15-----					1.22	-----	-----	-----	-----
17-----	M .60	M .77	M .89	M .95	1.25	-----	-----	-----	-----
26-----			M .90	M 1.20	-----	M .87	M .59	M .40	M .24
27-----					-----	M .80	M .58	M .49	M .38
28-----	I .35	I .42	I .48	-----	-----	-----	-----	-----	-----
30-----					-----	-----	-----	-----	.70
31-----	.84	.90	.99	1.14	S 1.30	1.07	-----	-----	-----
Aver- ages	0.63	0.73	0.84	1.06	1.21	0.91	0.61	0.48	0.40

MAUNA LOA OBS., HAWAII									
	Air mass								
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
August									
1-----	----	----	1.35	1.45	----	----	----	----	----
2-----	1.17	1.26	1.35	1.44	1.63	----	----	----	----
3-----	1.22	1.30	1.39	1.50	1.61	----	----	----	1.17
4-----	1.18	1.26	1.36	1.47	1.59	1.42	1.31	1.22	1.14
5-----	1.21	1.29	1.38	1.49	----	1.41	----	1.22	1.15
6-----	1.22	1.28	1.38	1.47	1.59	----	----	----	----
10-----	----	----	----	----	1.55	----	----	----	----
11-----	1.13	1.21	----	----	----	----	----	----	----
12-----	----	----	----	----	----	----	----	1.21	1.12
13-----	1.16	1.23	1.32	1.44	1.57	----	----	----	----
15-----	----	----	----	1.46	----	1.46	----	----	----
16-----	1.23	1.31	1.41	1.51	1.62	1.48	1.35	1.26	1.17
17-----	1.21	1.29	1.38	1.51	1.64	----	----	----	----
18-----	1.21	1.29	----	----	----	----	----	----	----
20-----	----	----	----	1.51	1.64	1.45	1.35	1.26	1.18
22-----	1.16	1.23	1.33	1.43	----	----	----	----	----
23-----	1.16	1.25	----	1.43	----	----	----	----	----
24-----	----	----	----	1.43	----	----	----	----	----
29-----	1.26	1.34	----	1.52	----	----	----	----	----
Aver- ages	1.19	1.27	1.37	1.47	1.60	1.44	1.34	1.23	1.16

SOLAR RADIATION DATA

AUGUST 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass., during the month

									Avg								Avg										Avg
Date	6	7	8	9	10	11	12		13	14	15	16	17	18	19		20	21	22	23	24	25	26				
Langleys	295	294	253	291	165	317	342	279	217	213	246	175	262	237	358	244	366	371	216	384	245	41	53	239			
Date	27	28	29	30	31	1	2																				
Langleys	295	148	154	383	370	371	415	305																			

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass., during the month

	Avg																			Avg																			Avg																		
Date	6	7	8	9	10	11	12		13	14	15	16	17	18	19			20	21	22	23	24	25	26																																	
Langleys	184	263	255	160	219	68	133	183	237	292	212	212	259	179	68	208	99	180	227	103	241	54	65	138																																	
Date	27	28	29	30	31	1	2																																																		
Langleys	212	206	109	124	164	181	78	153																																																	

Note. Langley is the unit used to denote one gram calorie per square centimeter.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

AUGUST 1958

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys . . .	423	*165	*203	239	401	390	392	391	444	450	435	*341	*268	*165	*372	*356	*258	379	329	334	361	397	*265	*313	**	*-4	**	*68	383	376	310	317

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

** Radiometer inoperative.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

AUGUST 1958

1958	Aktavik, Mackenzie	Albuquerque, N. Mex.	Apalachicola, Fla.	Annette, Alaska	Astoria, Ore.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island	Cape Hatteras, N. C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Ore.	Dartmouth, N. S.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	Edmonton, Alberta	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.
Aug. 6-----	517	690	595	122	663	468	189	385	642	595	687	606	678	590	719	296	559	453	585	735	648	730	618	278	450	667	584	286	661	597
Aug. 7-----	288	725	281	349	472	616	204	221	676	528	641	515	660	598	386	160	320	378	587	495	616	399	702	476	450	612	698	103	661	342
Aug. 8-----	355	---	548	304	(655)	561	158	128	663	388	253	418	596	575	639	255	635	619	530	575	624	624	648	636	419	612	736	460	571	523
Aug. 9-----	515	---	429	252	(654)	638	163	202	590	603	460	371	652	574	634	302	542	661	529	676	586	696	660	660	661	666	692	260	355	590
Aug. 10-----	219	636	667	462	637	627	373	170	631	274	612	321	607	594	589	447	593	529	618	650	685	685	614	425	490	552	664	362	642	590
Aug. 11-----	(396)	614	381	578	575	488	244	67	589	661	583	675	546	582	719	467	466	522	446	665	606	707	691	515	560	637	549	339	621	604
Aug. 12-----	(479)	513	388	106	631	453	331	192	556	627	648	601	602	524	654	627	469	392	609	673	536	711	678	587	575	690	376	363	562	583
Average-----	(396)	636	470	339	(612)	550	237	188	621	525	555	529	620	577	620	365	512	508	572	638	543	650	659	511	505	664	547	310	582	547
Aug. 13-----	393	708	132	117	601	222	471	335	632	366	599	397	601	591	575	237	574	478	592	655	146	716	664	654	508	723	583	445	608	559
Aug. 14-----	240	701	329	59	565	545	301	123	646	352	652	381	339	611	739	647	615	590	630	688	479	697	666	585	505	681	581	470	622	574
Aug. 15-----	159	669	566	354	617	631	186	578	588	384	638	373	432	552	720	236	565	201	398	685	158	562	571	319	550	682	462	338	653	439
Aug. 16-----	112	702	634	484	516	407	333	224	572	292	437	326	629	546	694	611	555	538	153	636	296	252	469	634	557	715	528	465	605	473
Aug. 17-----	170	699	633	479	534	535	219	387	563	409	501	381	663	537	606	620	488	541	143	579	206	579	589	558	539	637	614	---	422	561
Aug. 18-----	231	597	(254)	136	511	603	178	351	453	420	527	383	639	553	571	42	215	604	637	631	144	659	683	651	460	564	650	---	278	559
Aug. 19-----	443	554	584	99	615	540	88	436	529	647	603	656	420	552	597	226	433	536	571	672	590	609	472	555	163	612	665	256	610	562
Average-----	250	661	(448)	247	566	498	254	347	569	410	565	414	535	563	643	374	492	498	518	649	289	582	588	566	469	659	583	395	542	532
Aug. 20-----	377	602	591	58	551	472	195	384	198	647	461	619	463	599	527	514	434	459	511	577	610	611	604	220	463	637	431	452	574	571
Aug. 21-----	425	---	577	500	537	549	231	133	537	589	539	565	617	636	639	170	459	231	621	591	432	613	413	443	461	497	642	298	194	573
Aug. 22-----	307	495	511	392	350	596	352	164	457	345	591	350	629	646	702	374	538	512	594	609	364	601	190	569	395	545	598	371	293	582
Aug. 23-----	402	699	631	92	433	425	97	159	639	650	598	580	606	488	702	496	502	617	402	626	505	611	405	578	528	519	594	293	400	562
Aug. 24-----	159	651	361	259	535	374	137	104	606	372	597	424	537	414	627	589	553	132	630	546	578	611	519	281	474	479	551	277	448	550
Aug. 25-----	192	682	419	508	228	407	96	207	---	61	524	77	312	389	433	113	559	315	609	587	133	610	647	583	437	684	488	355	639	517
Aug. 26-----	332	675	298	421	467	479	256	224	415	78	568	70	459	592	408	429	278	539	602	622	256	608	665	493	106	696	348	297	609	536
Average-----	314	634	471	319	443	472	195	196	475	392	554	384	515	538	573	384	475	401	567	594	411	609	492	448	409	580	522	334	451	556
Aug. 27-----	362	672	632	480	186	514	245	257	563	466	584	456	597	602	162	537	95	589	581	412	594	609	641	544	432	671	362	320	617	532
Aug. 28-----	206	662	631	296	322	600	148	241	427	247	473	299	627	642	249	567	165	573	571	397	403	597	652	528	253	664	557	275	616	529
Aug. 29-----	178	560	641	471	625	581	190	286	326	247	369	252	606	641	201	---	625	557	552	289	82	590	606	438	282	638	646	393	612	549
Aug. 30-----	288	657	592	112	(537)	554	130	100	157	559	598	551	621	596	681	265	534	468	587	590	558	595	626	411	349	621	653	312	550	548
Aug. 31-----	300	652	(646)	305	529	521	181	416	444	553	527	---	406	470	353	509	623	605	485	600	615	328	464	536	589	207	582	501	582	531
Sept. 1-----	206	677	601	385	453	604	303	139	592	554	583	470	229	529	619	468	653	182	674	560	135	591	403	345	295	646	599	393	558	501
Sept. 2-----	166	582	610	411	368	617	135	391	501	610	644	587	421	588	682	586	573	582	168	533	261	590	612	573	357	641	618	293	615	476
Average-----	244	637	(628)	351	(431)	570	190	261	430	458	548	449	517	572	438	463	456	466	479	484	295	587	594	453	348	631	575	313	593	524

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

AUGUST 1958

	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Moosonee, Ontario	Nashville, Tenn.	New York, N. Y.	Normandin, Quebec	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	Portland, Me.	
1958																															
Aug. 6-----	399	646	722	684	588	579	586	723	633	534	734	671	422	513	---	649	612	126	640	564	671	437	666	564	499	481	630	---	595	636	
Aug. 7-----	414	658	736	678	475	631	277	592	474	507	729	715	470	418	---	671	637	192	642	588	617	219	575	522	---	646	554	---	553	527	
Aug. 8-----	686	629	643	477	565	550	513	676	418	493	728	692	573	623	---	617	643	190	633	142	647	161	554	477	287	626	507	---	501	479	
Aug. 9-----	631	363	560	467	581	613	630	690	708	334	540	541	674	658	---	694	670	191	(633)	251	422	497	503	717	---	385	---	---	501	631	
Aug. 10-----	590	365	594	646	631	488	368	711	239	403	645	581	682	581	---	689	666	212	631	342	565	515	478	371	299	---	528	---	654	570	
Aug. 11-----	439	588	703	---	593	429	468	756	698	578	675	663	674	597	---	632	618	237	652	328	621	513	266	389	469	---	338	---	574	650	
Aug. 12-----	379	552	708	612	542	534	360	721	591	611	542	629	681	620	---	618	592	108	647	459	599	333	331	238	229	616	516	575	604	598	
Average-----	505	572	681	594	568	546	486	708	537	494	656	626	596	573	---	653	634	179	(640)	382	592	382	482	468	357	592	494	---	569	584	
Aug. 13-----	590	609	682	661	265	448	570	614	402	212	539	508	460	284	---	492	449	304	637	646	632	430	460	355	521	---	445	---	614	401	
Aug. 14-----	673	633	651	654	268	606	600	657	533	559	635	571	475	613	---	593	(508)	307	628	599	676	163	521	286	490	593	402	---	608	551	
Aug. 15-----	335	615	653	641	500	536	361	328	476	637	343	463	444	614	---	236	196	---	621	422	543	304	492	546	466	583	454	---	574	489	
Aug. 16-----	709	614	502	632	542	527	523	774	617	(494)	656	628	658	530	---	657	(620)	371	518	580	623	203	264	340	462	---	407	---	639	442	
Aug. 17-----	730	571	489	502	384	350	526	778	554	---	454	531	682	640	---	441	582	392	295	637	584	94	654	320	75	(619)	474	---	278	530	
Aug. 18-----	135	525	499	188	668	658	664	774	429	---	506	241	648	583	---	515	(495)	448	599	500	522	510	624	655	393	---	551	---	280	284	
Aug. 19-----	631	123	683	453	631	424	605	769	603	---	534	437	627	490	---	581	562	340	569	590	627	295	674	643	443	---	568	---	554	584	
Average-----	543	527	594	533	477	507	550	671	517	(475)	524	483	570	536	---	502	(487)	361	552	568	601	286	527	455	407	---	472	---	507	469	
Aug. 20-----	594	520	668	604	527	474	567	789	590	637	565	527	667	343	---	425	(563)	482	431	652	521	---	631	571	262	---	617	---	335	625	
Aug. 21-----	715	571	468	529	616	603	245	770	198	366	503	470	560	---	---	214	614	171	596	585	378	---	523	465	94	---	472	---	118	548	
Aug. 22-----	687	---	545	508	533	560	343	785	566	70	404	354	644	---	---	271	636	302	590	574	319	218	259	445	439	---	472	---	564	475	
Aug. 23-----	699	450	679	537	225	435	400	771	671	260	580	476	624	---	---	190	620	617	214	584	533	590	270	206	525	454	---	223	---	571	515
Aug. 24-----	589	450	679	537	225	435	400	771	671	260	580	476	624	---	---	190	620	617	214	(576)	532	484	65	353	173	282	---	155	---	132	551
Aug. 25-----	589	450	679	537	225	435	400	771	671	260	580	476	624	---	---	190	620	617	214	585	615	665	335	627	28	190	---	555	---	394	156
Aug. 26-----	632	480	642	462	214	441	622	729	500	---	483	580	525	---	---	609	639	605	322	600	643	646	320	671	149	540	---	511	---	520	132
Average-----	662	487	616	521	371	470	486	740	421	309	541	514	605	---	---	404	596	(614)	257	(566)	590	515	242	467	337	323	---	429	---	376	429
Aug. 27-----	368	---	649	590	507	562	618	698	594	585	640	509	613	---	---	596	420	(568)	439	556	504	659	361	654	548	497	588	632	---	500	527
Aug. 28-----	542	504	620	456	368	622	466	729	574	589	413	411	538	---	---	596	487	(570)	368	569	595	---	137	617	161	222	590	608	---	525	410
Aug. 29-----	612	264	649	201	634	598	551	743	614	605	503	551	635	---	---	583	551	568	421	603	618	636	146	612	591	340	---	585	---	397	286
Aug. 30-----	587	321	560	573	604	545	552	724	494	528	659	634	627	---	---	471	632	617	416	599	347	605	59	598	543	47	268	567	---	157	551
Aug. 31-----	594	479	672	359	418	534	511	720	564	480	639	626	631	---	---	472	610	644	280	601	189	625	88	512	526	183	629	553	---	308	481
Sept. 1-----	668	527	631	545	609	608	603	716	507	563	636	600	620	---	---	285	553	590	198	600	437	588	415	575	574	366	580	623	---	236	534
Sept. 2-----	668	277	587	446	621	---	432	696	517	534	579	484	597	---	---	445	587	606	65	590	365	629	293	595	623	529	576	595	---	565	578
Average-----	577	395	638	453	537	578	533	718	552	551	581	545	609	---	---	492	549	(595)	312	588	436	624	214	595	510	312	538	595	---	384	481

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

AUGUST 1958

	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Savville, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Seattle, Wash. (U. of W.)	Shreveport, La.	Spokane, Wash.	State College, Pa.	Swan Island, W. I.	Tampa, Fla.	Toronto, Ontario	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Silver Hill Obs.)	Winnipeg, Manitoba
1958																					
Aug. 6-----	585 (709)	637	689	674	678	386	580	502	650	536	(605)	675	672	---	---	501	487	565	717	564	669
Aug. 7-----	573 (635)	653	701	670	619	503	624	335	280	253	(540)	665	494	---	---	616	592	659	711	577	482
Aug. 8-----	563 (711)	642	649	562	562	(711)	536	439	478	490	543	501	577	---	---	441	618	599	744	460	620
Aug. 9-----	605 (683)	653	672	682	578	378	751	555	638	635	501	654	707	---	---	520	624	711	620	690	427
Aug. 10-----	637 (547)	648	252	601	707	595	396	265	618	630	545	645	528	---	---	550	175	664	668	637	614
Aug. 11-----	637 (623)	635	625	506	678	665	618	571	532	500	---	583	307	---	---	227	606	689	709	258	515
Aug. 12-----	481 (551)	508	691	600	684	401	430	335	644	607	600	661	281	---	---	537	559	518	701	480	580
Average-----	583 (636)	625	605	625	658	(520)	576	429	549	522	(556)	631	510	---	---	485	523	644	696	524	558
Aug. 13-----	408 (682)	402	550	663	641	682	361	320	562	556	540	667	511	---	---	442	622	598	729	229	537
Aug. 14-----	336 (628)	324	554	530	667	479	421	210	625	603	672	655	707	---	---	729	528	596	704	246	547
Aug. 15-----	534 (320)	294	662	536	459	695	587	410	619	612	581	638	401	---	---	642	636	511	677	680	566
Aug. 16-----	533 (648)	559	627	520	605	648	237	460	440	409	635	524	429	---	---	708	581	590	626	695	431
Aug. 17-----	401 (674)	647	633	651	569	679	266	433	575	487	343	531	654	---	---	670	647	524	648	466	558
Aug. 18-----	607 (476)	490	503	517	180	672	634	545	(525)	463	(511)	564	711	---	---	177	464	636	637	641	486
Aug. 19-----	507 (583)	560	538	468	406	595	673	534	596	587	---	610	637	---	---	294	591	540	639	641	542
Average-----	475 (573)	468	581	524	504	636	454	416	(563)	531	(547)	599	531	---	---	472	544	597	676	460	546
Aug. 20-----	518 (625)	587	319	582	502	503	668	482	558	541	611	592	641	---	---	625	148	618	739	562	391
Aug. 21-----	540 (660)	610	556	466	389	---	---	334	571	564	182	605	537	---	---	573	210	661	722	592	507
Aug. 22-----	571 (427)	614	164	472	344	519	445	505	501	505	341	525	568	---	---	570	497	651	654	396	433
Aug. 23-----	384 (575)	561	187	552	501	215	623	494	482	482	462	562	533	---	---	695	480	560	531	716	439
Aug. 24-----	434 (618)	607	612	419	497	164	324	311	549	538	249	572	43	---	---	701	633	101	---	700	297
Aug. 25-----	---	(658)	596	85	582	459	562	53	202	513	477	618	543	---	---	416	393	630	722	112	316
Aug. 26-----	83 (544)	610	606	645	552	587	54	395	454	412	618	533	520	---	---	762	462	635	562	278	445
Average-----	422 (586)	598	361	531	461	425	361	389	518	501	440	562	463	---	---	560	339	621	688	382	400
Aug. 27-----	---	(634)	592	490	646	420	389	574	493	185	129	623	214	---	---	458	525	539	725	611	431
Aug. 28-----	162 (272)	579	588	643	594	263	107	447	335	337	598	471	487	---	---	578	514	544	694	199	269
Aug. 29-----	619 (618)	630	500	641	586	152	588	418	435	319	538	390	493	---	---	607	493	---	149	583	136
Aug. 30-----	604 (711)	632	92	649	591	274	601	425	361	302	553	455	447	---	---	713	463	634	472	596	167
Aug. 31-----	483 (610)	627	343	481	617	244	325	407	523	477	500	572	521	---	---	399	434	281	---	692	521
Sept. 1-----	537 (637)	609	586	562	591	618	584	247	378	363	462	446	381	---	---	756	259	---	698	433	520
Sept. 2-----	611 (602)	562	408	590	493	528	686	443	509	301	564	470	542	---	---	785	594	527	724	594	449
Average-----	503 (584)	604	430	602	556	353	495	411	390	318	548	431	522	---	---	646	414	561	593	505	307

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

Values in parentheses are interpolated.

USCOMM-WB-Asheville - 11/3/58 - 1850

Chart I. A. Average Temperature ($^{\circ}$ F.) at Surface, August 1958.B. Departure of Average Temperature from Normal ($^{\circ}$ F.), August 1958.

A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), August 1958.

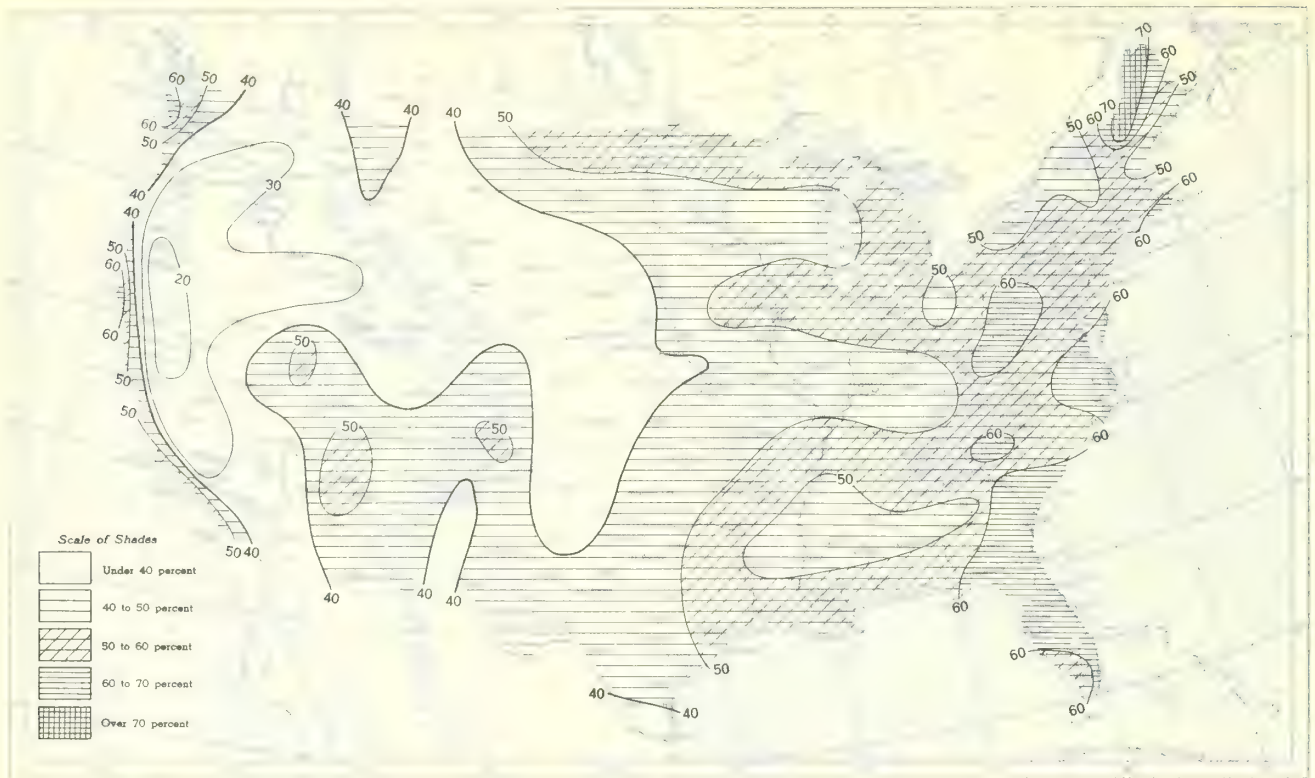


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

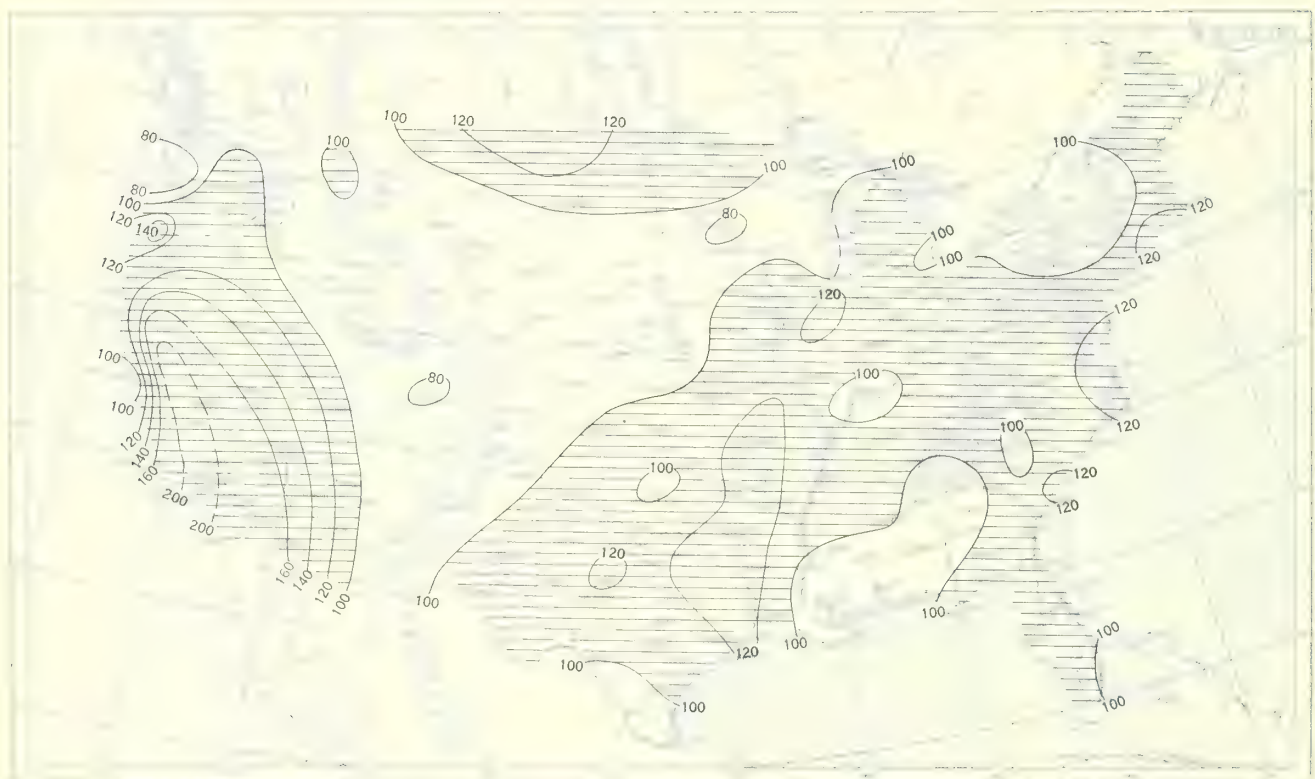


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, August 1958.



B. Percentage of Normal Sky Cover Between Sunrise and Sunset, August 1958.

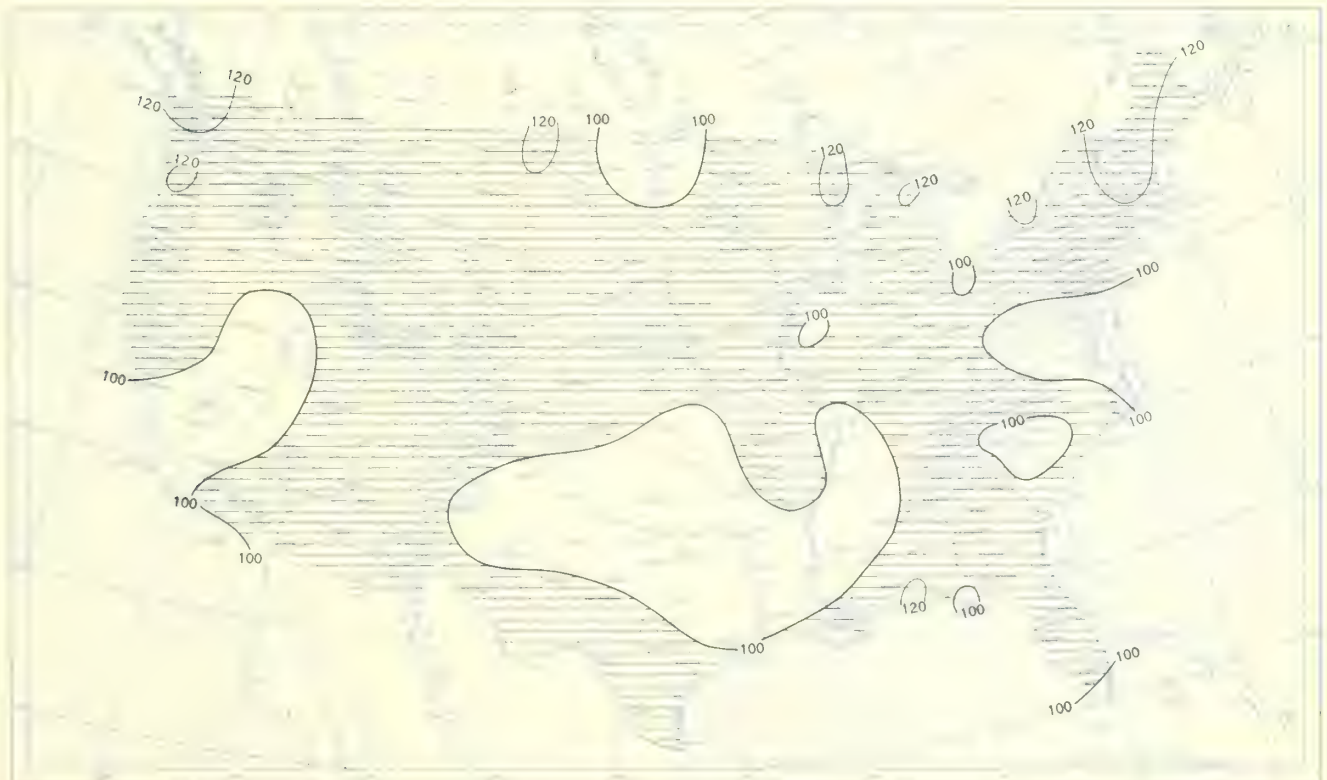


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, August 1958.



B. Percentage of Normal Sunshine, August 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, August 1958. Inset: Percentage of Mean Daily Solar Radiation, August 1958. (Mean based on period 1951-55.)



(Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley (1 langley = 1 gm. cal. cm. $^{-2}$). Basic data for isotherms are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, August 1958.

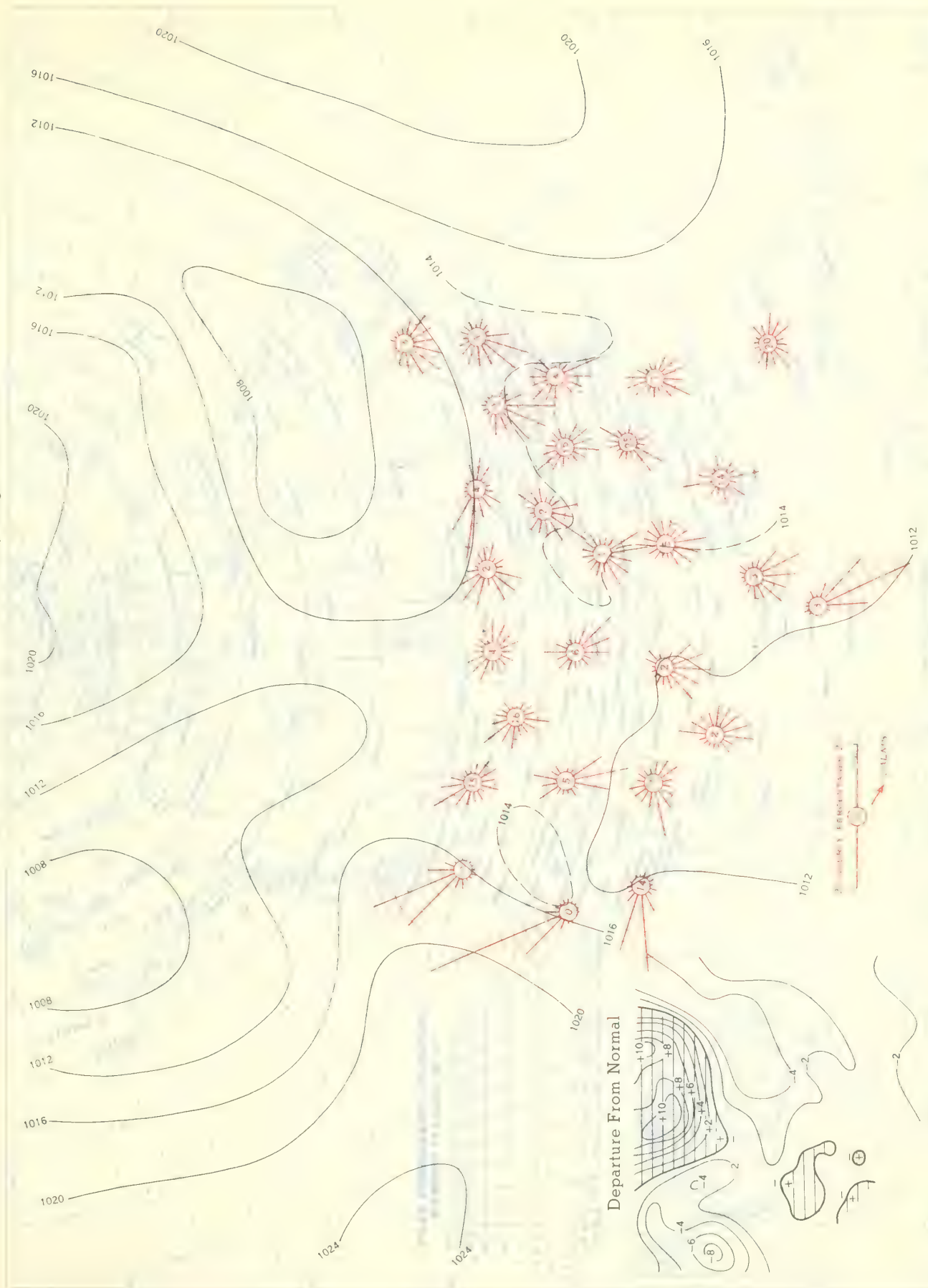


Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

POLAR STEREOGRAPHIC PROJECTION
STANDARD PARALLEL AT 40°

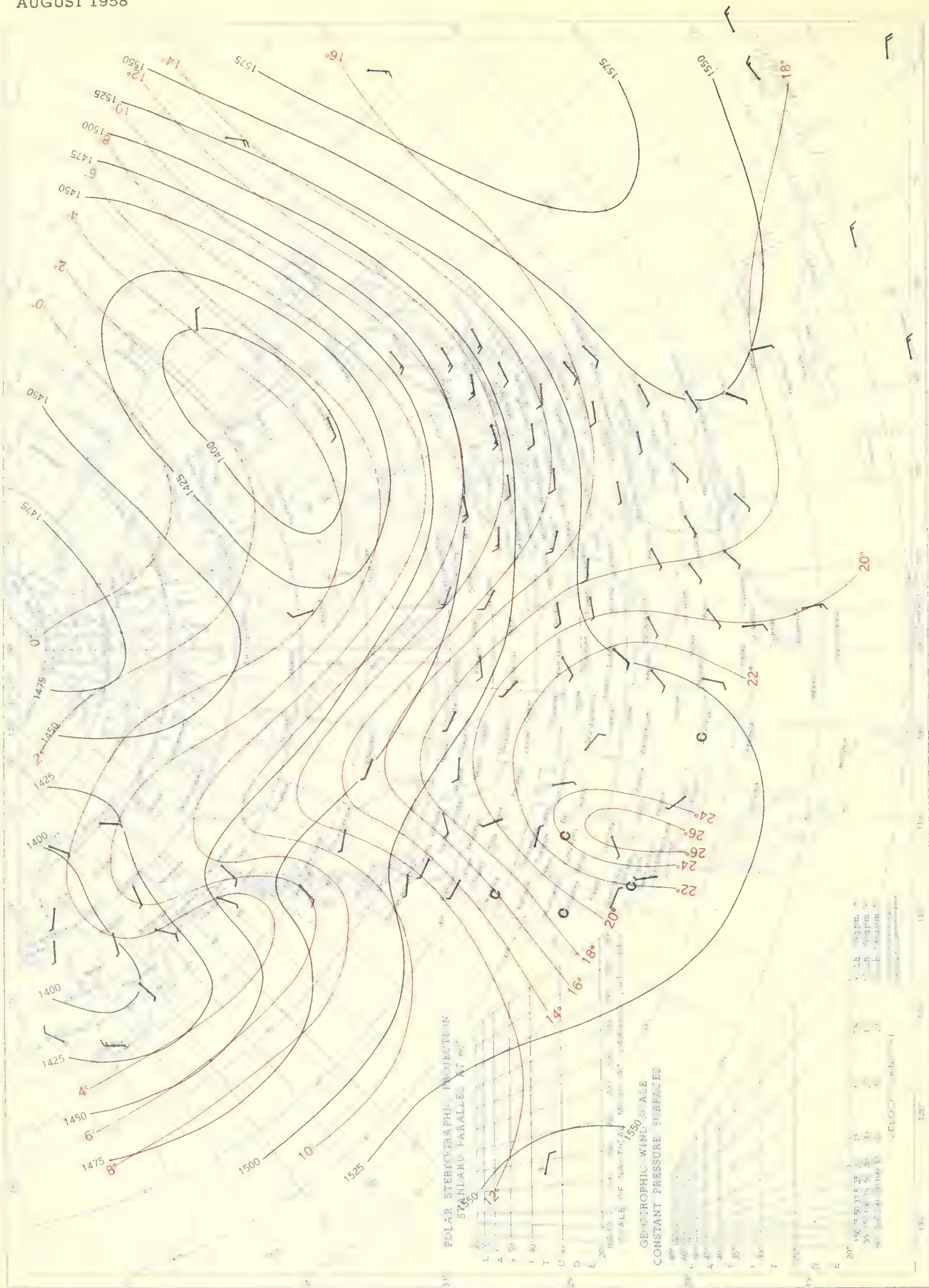
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, August 1958. Inset: Departure of Average Pressure (mb.) from Normal, August 1958.



Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, August 1958. Average Height and Temperature, and Resultant Winds.

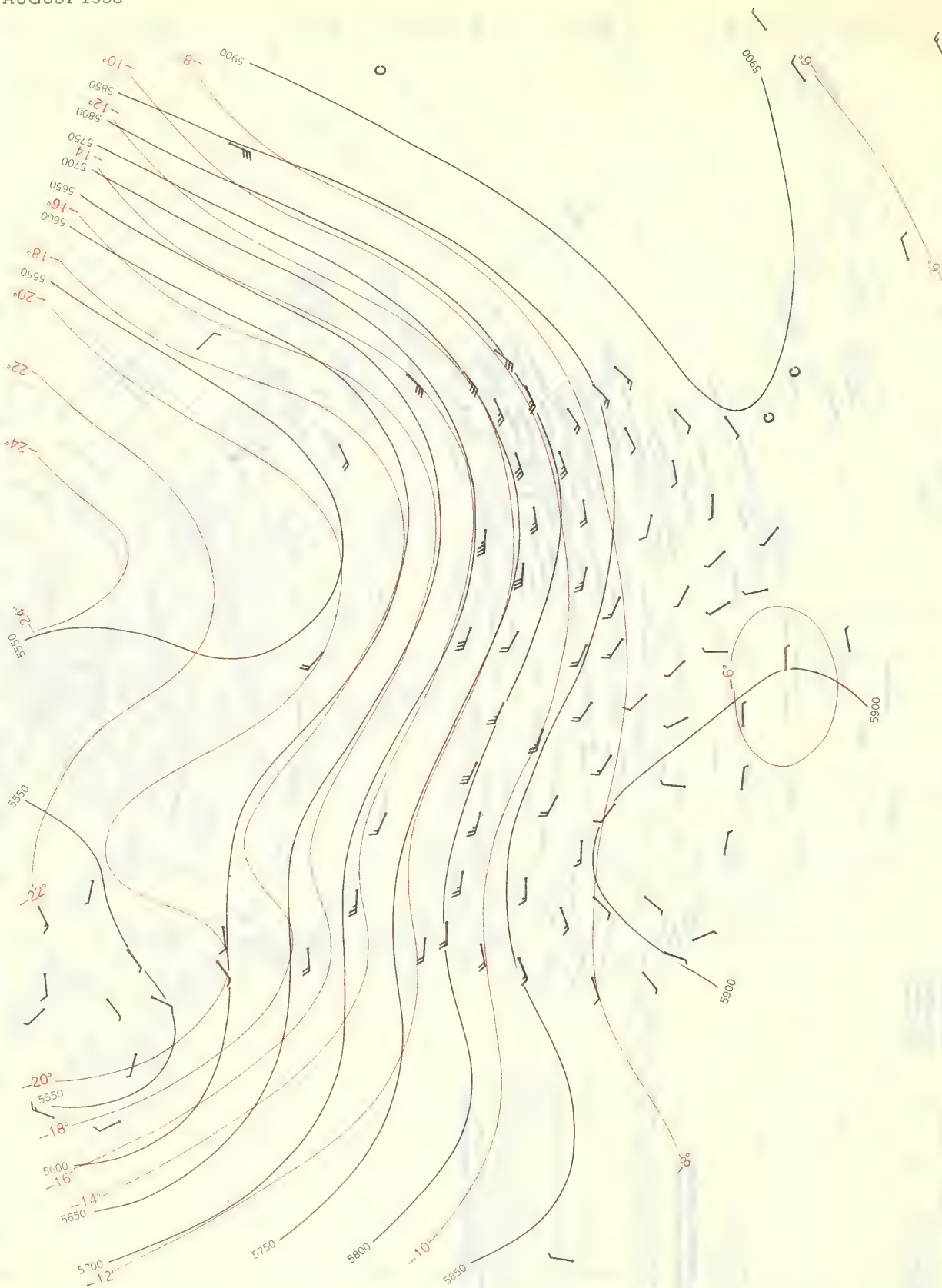


Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.



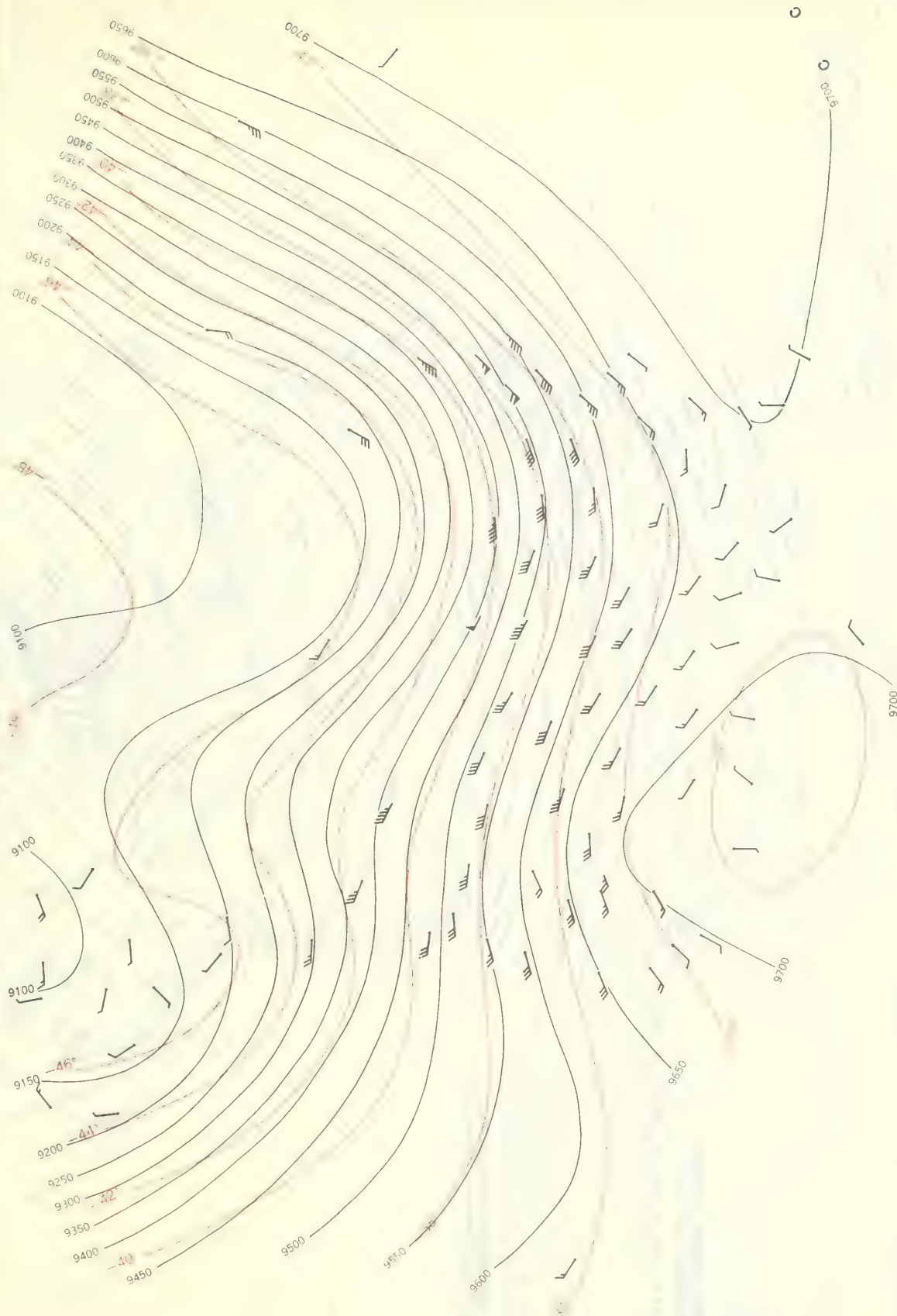
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, August 1958. Average Height and Temperature, and Resultant Winds.

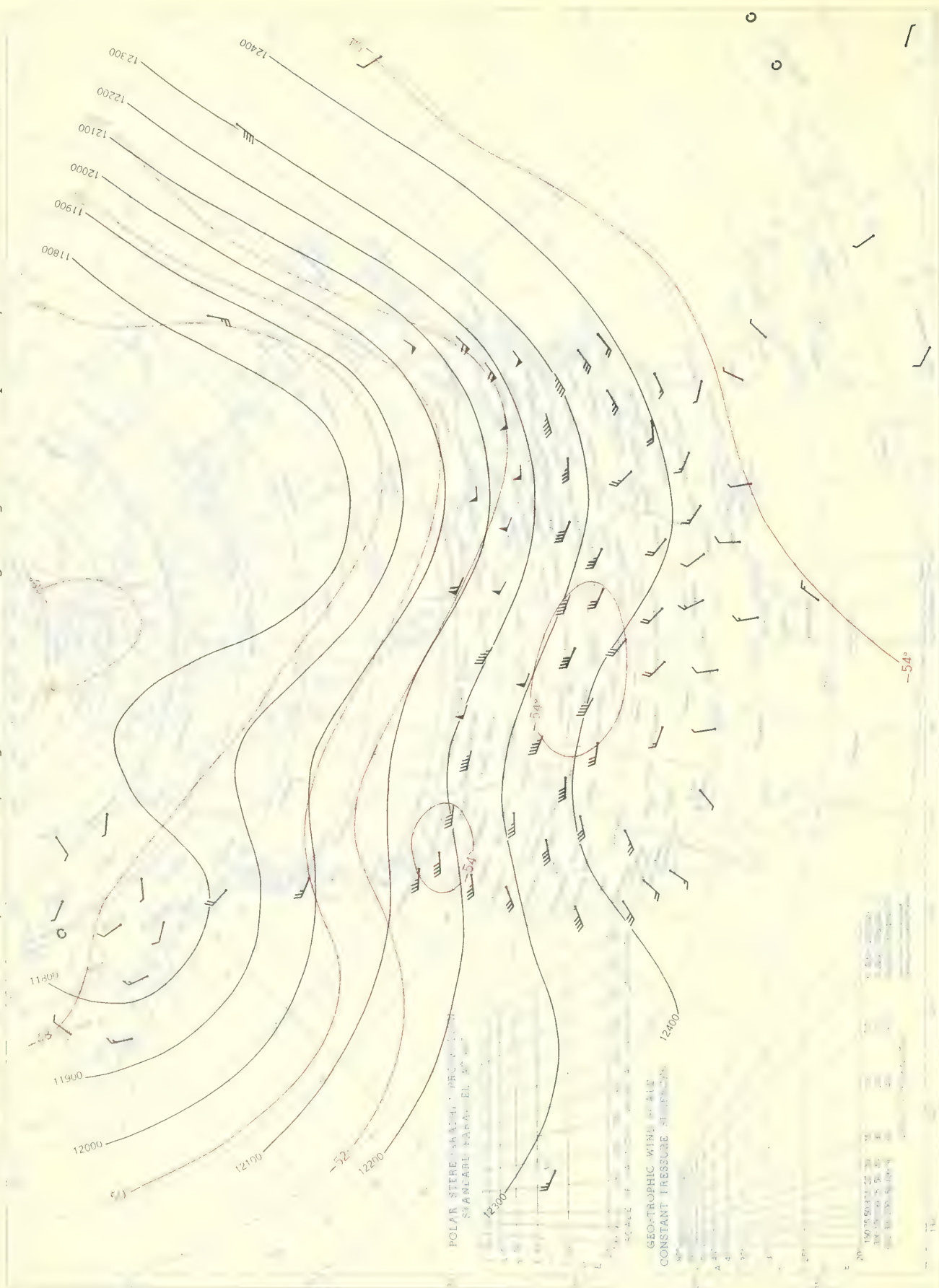


See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, August 1958. Average Height and Temperature, and Resultant Winds.



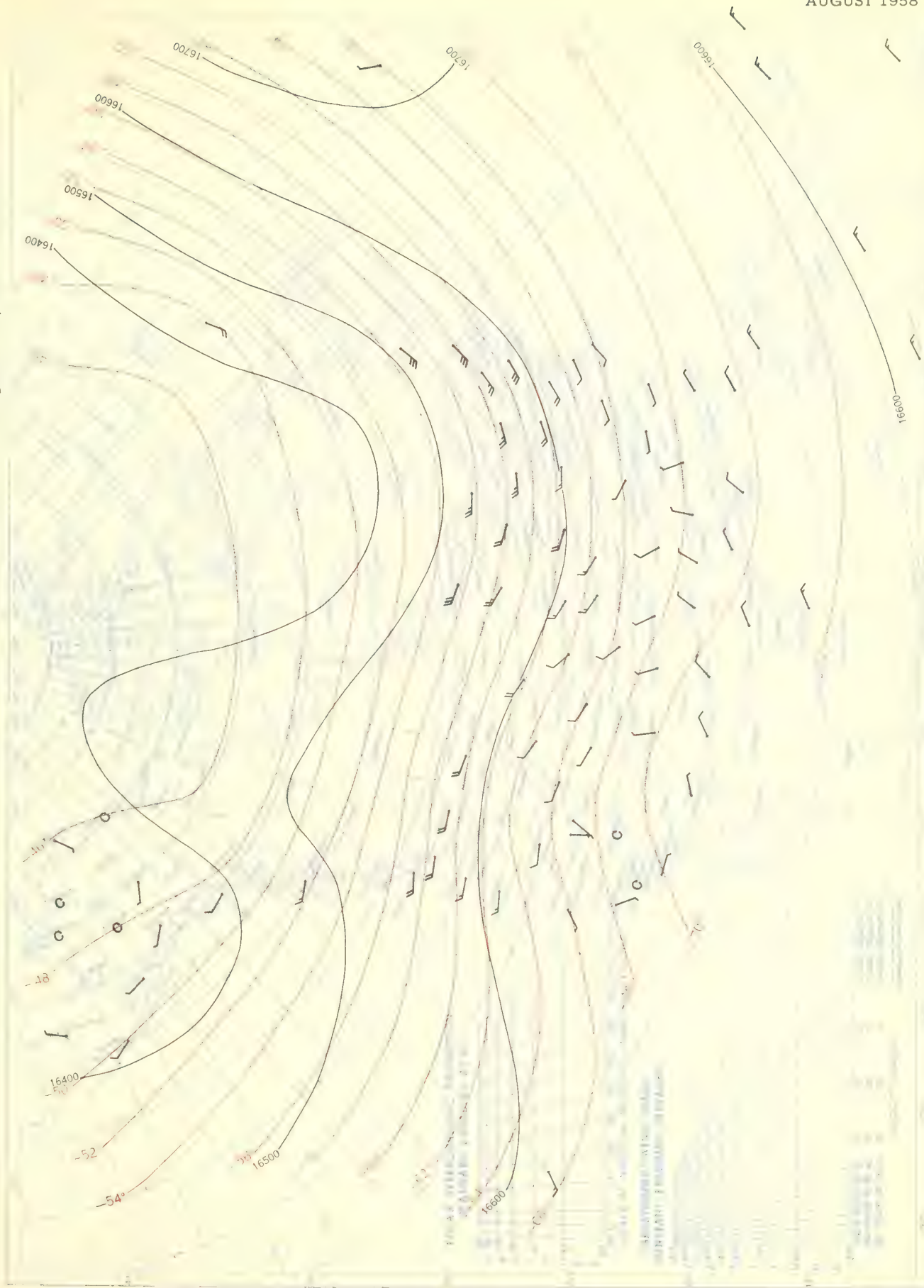
See Chart XII for explanation of map.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, August 1958. Average Height and Temperature, and Resultant Winds.

AUGUST 1958



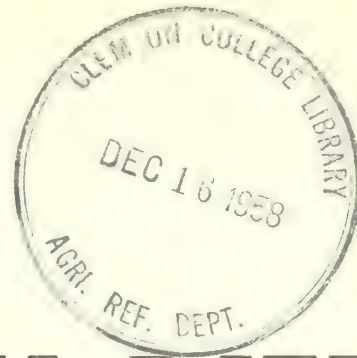
See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE

LEWIS L. STRAUSS, Secretary

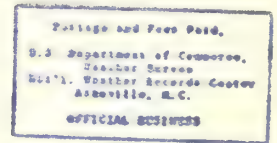
WEATHER BUREAU

F. W. REICHELDERFER, Chief



CLIMATOLOGICAL DATA

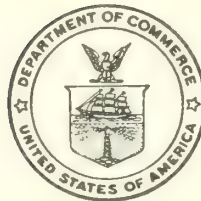
NATIONAL SUMMARY



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SEPTEMBER 1958

Volume 9 No. 9



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CHARTS I-XVII

NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 9

SEPTEMBER 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

Abnormally warm weather occurred the past 5 consecutive months along the Pacific coast. Downtown San Francisco, Calif., had the warmest September (66.8°) since 1871. The August dry spell continued in the upper Snake River Valley and around the Black Hills. Elko, Nev., reported many waterholes and reservoirs already or nearly dry. Rapid City, S. Dak., had the driest September since 1888 with 0.03 inch of rain, while the August-September period (0.29 inch) was the driest of record. However, most of the country had near to above normal temperatures, and the larger portion received moderate to heavy precipitation.

TEMPERATURE.--Above normal temperatures which had persisted west of the Continental Divide and in Texas and southern Louisiana nearly all summer continued over that region into September; exceptions being parts of eastern Washington, eastern Oregon, northwestern Nevada, and central Texas. This warm trend also continued in Florida, southern Georgia, and much of southern Alabama. Most remaining sections showed some change from August. Early in September above normal temperatures moved from west of the Continental Divide, until most of the Nation was covered. Cooler Canadian air followed, staying for the most part east of the Rockies, then another warm spell moved in. Towards the end of the month, cooler air entered the Pacific Northwest States and spread southeasterly into the lower Rockies. However, coastal California resisted the cooler air encroachment with continued above normal temperatures. September was the warmest of record at Oakland (68.9°) and was the warmest since 1939 or earlier at other California places. Downtown San Francisco with a record number of days 80° or higher, also experienced the highest temperature in 4 years (92° on the 26th). At the City Office in Sacramento, Calif., 63 days 90° or above established a July to September record. Commencing September 8, cooler Canadian air entered the northern Great Plains. The cold front was followed by record low temperatures for so early in the month at a few stations, notably, 49° on the 9th and 36° on the 12th at Chattanooga, Tenn., and Hartford, Conn., respectively. A warmer spell followed with record maximum temperatures for so late in the month at Lander, Wyo., (90° on the 22d). Another cool spell reduced minimum temperatures to record low levels for so early in the fall at Reno, Nev., (21° on the 24th, equaling the September record low) and Salt Lake City, Utah, (31° on the 25th); the lowest September maximum temperature at Bakersfield, Calif., (27° on the 23d); the highest minimum for so late in the season at Red Bluff, Calif., (27° on the 26th).

PRECIPITATION.--The extremely light August precipitation areas in the Dakotas and Montana received deficient September precipitation. The major light September precipitation area chiefly covers the Dakotas westward through the Columbia and Snake River Valleys. Another light precipitation area occurred in the Atlantic States from Virginia to Florida, except for the coastal sections which received tropical storm precipitation. Trop-

ical storm Ella, after crossing the Caribbean and the Gulf of Mexico, entered Texas on the 6th. This was the first tropical storm since 1945 to come into the immediate area of Corpus Christi. Ella produced a great share of the monthly precipitation in the nearby sections and in southwestern Florida. About 2 weeks later heavy precipitation fell in a band extending from Texas into the Ohio Valley, with largest amounts in eastern Texas, and northern and central Mississippi. Abilene, Tex., had its record September maximum 24-hour precipitation of 3.08 inches on the 15th and 16th. The next period of heavy precipitation was due to hurricane Helene, which traveled along the southeastern coast to approximately 35 miles south of Cape Hatteras before swinging out into the Atlantic. The highest wind gust recorded on the North Carolina coast was 135 m.p.h. at Wilmington, N. C., on the 27th. At Providence, R. I., the heavy rainfall of 2.23 inches on the 27th-28th was largely associated with this storm. At Boston, Mass., 2.33 inches from this storm on the 27th and 28th raised the total precipitation for the period January through September to 51.90 inches, a new record. During the last week of September there were heavy rains near Flagstaff, Ariz., in eastern New Mexico, and in the trans-Pecos region of western Texas. At Roswell, N. M., the record summer drought ended on the 26th and 27th, with the heaviest 24-hour rain (2.29 inches) in 3 years. The wettest September since 1918 or earlier was reported from Fresno (0.46 inch) and Santa Maria, Calif., (1.59 inches); Flagstaff, Ariz., (6.60 inches); El Paso (6.29 inches) and Houston, Tex., (15.40 inches); Vicksburg, Miss., (9.93 inches). From the Plains States westward each state, except Oklahoma and Texas, reported locations without measurable amounts of precipitation. Great Falls, Mont., (0.28 inch) had its least amount since 1905. Eugene, Oreg., with 11 days measurable precipitation (more than twice the usual number) still had less than normal precipitation. Across the country, at Philadelphia, Pa., the 22 days from August 26 to September 16, without measurable precipitation, equalled the longtime summer record. To the north, at Billings, Mont., no thunderstorms were reported during September for the second time since the start of record; while in the south, at Fort Myers, Fla., thunderstorms or distant lightning were reported, mostly in the afternoon, on 28 days.

DESTRUCTIVE STORMS AND UNUSUAL WEATHER PHENOMENA.--September tornadoes were blamed for at least 1 death, 15 injuries, and losses to property and crops exceeding \$659,000.

Tropical storm Ella which entered Texas on the 6th brought beneficial rains to many sections and tides 2 to 4 feet above normal along most of the Texas and Louisiana coasts. Heavy rainfall on the 10th and 11th produced serious flash flooding in the low-lying residential districts of El Paso. Extremely heavy rains on most days from the 18th to the 22d in west and central Gulf coastal areas caused serious local flooding.

Damages from hurricane Helene were estimated at

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

SEPTEMBER 1958

\$11 million. The major area affected was north of Myrtle Beach, S. C. High water damage was relatively small in North Carolina, due to the height of the storm occurring at the time of low tide, while at most places, highest winds were either offshore or parallel to the coast.

Heavy to excessive rains occurred from the 26th to the 28th in extreme western Texas and in the nearby mountain areas. At Presidio, Tex., on the 28th the Rio Grande River rose to 11 feet above flood stage (a 32-year record). The lower Rio Grande River also flooded above the Falcon Reservoir. Burbank, Calif., reported its record lowest average station pressure (29.072 inches). Further north Red Bluff experienced its highest of record average wind speed (10.7 m.p.h.); Helena, Mont.,

with an average wind speed of 9.3 m.p.h., had its windiest September since before 1940; Lincoln, Neb., had the highest September average wind speed (11.5 m.p.h.) since 1903. Spokane, Wash., had its record greatest number of days 90° or above (39) for the May to September period. In contrast, Akron, Ohio, reported none for the first time since 1887. Both St. Louis, Mo., and Buffalo, N. Y., had nearly double the average number of cloudy days, while Burlington, Vt., had only 3 clear days. The aurora borealis was observed on the night of the 4th in Georgia, North Carolina, and South Carolina.

Hailstones ranged up to 4 inches in diameter at Duluth, Minn., on the 8th, and up to the size of baseballs near Harrison and Dalton, Nebr., on the 11th.

CONDENSED CLIMATOLOGICAL SUMMARY

SEPTEMBER 1958

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Greenville	99	2	Healin	39	29	Hamilton	11.38	Seale 6W	1.52
Arizona	2 Stations	113	21+	Fort Valley	27	25	Granville	9.84	5 Stations	.00
Arkansas	do	99	3+	2 Stations	38	28	Monticello 3S	17.22	Waldron	2.13
California	Cow Creek	121	2	White Mtn. 2	4	24	Pattway	3.90	19 Stations	.00
Colorado	Holly	103	3	Fraser	11	26+	Wolf Creek Pass 1E	7.04	Branson	.12
Connecticut	Norwalk Gas Plant	91	27	Coventry	29	29	Burlington	8.86	Bridgeport WB AP	2.96
Delaware	Selbyville	93	17	2 Stations	39	13	Wilmington N Castle WB AP	2.91	Lewes 1SW	1.75
Florida	7 Stations	98	8+	do	53	29	Pensacola WB City	11.54	Eustis 2S	.33
Georgia	Hawkinsville	100	27	Blairsville Exp. Sta.	38	29	Flat Top	7.74	Adel	.00
Idaho	Kooskia	102	10+	Obsidian 2NNW	13	25+	Burke 2ENE	3.48	Buhl	.00
Illinois	Jerseyville	95	4	Marengo	34	28	Edwardsville	6.65	Bloomington Wtrwks	1.08
Indiana	Shelbyville Nursery	96	5	Rochester	33	29	Warsaw	7.39	Logansport Cicott SB	1.28
Iowa	Hawarden	94	8+	2 Stations	28	28	Oakland 2E	7.73	2 Stations	.55
Kansas	Johnson 11ESE	102	1	Goodland WB Airport	28	30	Fact	11.94	Lenora	.00
Kentucky	3 Stations	95	6+	Cynthiana 2	36	13	Glasgow WKAY	5.09	Burdine 2NE	1.14
Louisiana	2 Stations	98	8+	2 Stations	45	29	Vinton	26.22	Baton Rouge WB AP	3.32
Maine	Farmington	88	1	Squa Pan Dam	27	20	Rockland	3.95	Squa Pan Dam	1.50
Maryland	College Park	94	17	New Germany	30	27	Williamsport	4.67	Beltsville Plant Sta. 4	1.14
Massachusetts	2 Stations	91	1	3 Stations	30	30+	Boston WB AP	7.50	Birch Hill Dam	3.24
Michigan	Huron Mountain	91	23	Kenton U. S. Forest	23	11	Hart	7.19	Kenton U. S. Forest	1.23
Minnesota	Canby	96	2	3 Stations	27	30	Collegeville St. John	5.98	Beardsley	.60
Mississippi	3 Stations	98	3+	University	44	28	Greenwood	20.19	Bluff Lake	2.78
Missouri	4 Stations	94	3	K. C. Green Haven West	33	30	Willow Springs	9.58	Union 1SE	1.44
Montana	3 Stations	100	12+	Dell 12 SSW	3	30	Essex	6.22	4 Stations	.00
Nebraska	Curtis	102	2	Hay Springs	19	30	Pawnee City	13.03	Gordon 27SE	.00
Nevada	No Las Vegas Doxarm	113	1	Mountain City RS	8	24	Searchlight	1.81	4 Stations	.00
New Hampshire	Campton	93	1	Fabyan	26	29+	Windham	5.53	West Lebanon	2.05
New Jersey	2 Stations	93	27+	Charlotteburg	32	30+	Canistear Reservoir	7.07	Burlington	2.16
New Mexico	do	102	5+	Eagle West	21	20	Edgewood	7.61	Lake Maloya	.23
New York	Middleburg 4SW	94	1	Shrub Oak	26	29	Alleghany	10.75	Salem	2.23
North Carolina	3 Stations	98	18+	Transou	30	29	Wilmington WB AP	10.10	Mount Gilead 4W	T
North Dakota	Linton	98	23	2 Stations	19	30+	Abercrombie 3NW	2.49	3 Stations	T
Ohio	3 Stations	93	4+	Millport 2NW	29	29	Dorset 2E	6.25	Fremont	1.85
Oklahoma	do	103	1	3 Stations	39	30+	Flashman Tower	8.20	Comanche	.10
Oregon	Illehe	107	6	Fremont	9	24	Government Camp	4.95	Arlington	T
Pennsylvania	2 Stations	92	16	Coudersport 3NW	26	29	Myerstown	9.77	Kegg	1.18
Rhode Island	Greenville	89	26	Kingston	35	30	Greenville	5.95	Newport	3.92
South Carolina	Tilghman Forest Nursery	98	17+	3 Stations	42	29	McClellanville	7.82	Winnsboro	.39
South Dakota	Cheyenne Agency	104	8	Custer	11	30	Clear Lake	3.06	5 Stations	.00
Tennessee	2 Stations	96	3+	Mountain City 2	33	29	Bolivar 2	13.36	Odonville	.57
Texas	Presidio	109	3	4 Stations	41	30	Galveston WB City	25.06	Wichita Falls WB AP	.42
Utah	Antelope Island	104	7	do	13	25	Kanab PH	4.28	Elberta	.00
Vermont	2 Stations	90	1	Cavendish	27	30+	Mays Mills	5.92	Union Village Dam	1.69
Virginia	Danville	98	17	Monterey	30	29	Powhatan 5SW	3.35	Mathews 1SSW	T
Washington	5 Stations	100	8+	2 Stations	20	24	Rainier Paradise RS	7.85	White Swan	T
West Virginia	Williamson	96	27+	Cranberry Glades	28	29	McMechen Dam 13	5.46	Bluefield Mercer CO AP	.57
Wisconsin	5 Stations	90	3	Coddington 1E	25	28	Holcombe	7.12	Lone Rock CAA AP	1.19
Wyoming	Upton	101	8	Big Piney	6	25	Alta 1NNW	1.71	6 Stations	.00
Guano River	Curabo Substation	98	30	Guineo Reservoir	55	4	Maricao Fish Hatchery	22.29	Cambalache Exp. Forest	.78

And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

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State and station	Elevation (ground) ft.	Pressure			Temperature										Precipitation					Wind			No. of days (sunrise to sunset)		
		Station 0	Sea level	Average maximum	Average minimum	Average	Departure from normal			No. of days of 90° F or above	Average dew point	Average relative humidity		Total	Precipitation from normal			Snow, Sleet	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile		No. of days (sunrise to sunset)	
							Highest	Date	Lowest			Date	Greatest in 24 hours		Of inch or more	With thunderstorms	Speed					Direction			
		Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	In	In	In	In	In	M	M	M	M	M		
ALABAMA																									
Birmingham	610	992.7	1017.4	86	65	75.2	0.4	96	7 50	29 8	0	63 72	5.74	3.03	3.33	9 1	0.0	0	7.2	ENE	26	SW	41	6 12 12	6.1
Huntsville	605	994.9	1017.9	85	65	75.0	-.9	96	7 50	29 9	0	62 69	3.97	-.9	1.90	9 1	0.0	0	9.1	SE	27	S	15	8 9 13	5.9
Mobile	211	1008.1	1016.3	87	70	78.2	-.5	94	2 57	29 6	0	70 80	8.19	2.41	3.52	14 7	0.0	0	8.8	E	38	SW	17	5 10 15	6.7
Montgomery	198	1008.9	1016.8	89	67	78.0	-.9	96	1 55	29 16	0	66 73	4.78	1.27	1.48	9 4	0.0	0	6.7	E	38	SW	17	9 9 12	6.1
ARIZONA																									
Flagstaff	6993	-----	-----	71	43	57.0	-.0	84	1 32	14 0	1	57 32	6.60	4.75	1.80	14 15	0.0	0	7.2	ENE	26	SW	41	11 14	5.4
Phoenix	1109	969.5	1007.5	99	74	86.6	3.9	107	1 62	25 26	0	57 40	2.25	1.25	1.52	7 7	0.0	0	7.0	NE	39	E	26	18 8	4.2
Prescott	5014	846.9	1011.6	81	53	67.3	-.9	93	1 38	25 4	0	50 50	3.06	-.90	1.06	11 11	0.0	0	8.1	SSW	29	SW	1	17 8	5.3
Tucson	2558	922.1	1007.9	93	68	80.5	-.4	101	21 54	25 20	0	53 43	2.21	1.27	1.13	2 7	0.0	0	7.1	SE	35	E	6	17 8	5.3
Winslow	4880	851.0	1009.9	83	55	69.1	-.5	96	1 44	25 7	0	46 51	2.40	1.28	1.75	11 10	0.0	0	8.5	WSW	30	ESE	27	14 11	5.3
Yuma	199	1001.7	1006.7	104	75	89.4	1.1	112	6 63	26 28	0	55 36	2.40	-.64	1.0	3	0.0	0	7.7	WSW	30	SE	4	28 0	2.1
ARKANSAS																									
Fort Smith	458	999.0	1015.6	85	65	75.0	-.0	95	3 48	28 10	0	66 77	4.44	-.73	2.30	8 6	0.0	0	8.6	ENE	32	NE	1	7 19 19	6.0
Little Rock	257	1003.4	1016.3	84	66	74.8	-.0	94	3 50	29 11	0	66 76	7.18	4.33	2.56	9 4	0.0	0	8.6	ENE	32	NE	1	7 19 19	6.0
Texarkana	361	-----	1014.6	85	68	76.8	-.4	94	1 50	29 12	0	55 32	2.94	1.92	1.92	10 4	0.0	0	8.3	ENE	32	NE	1	7 19 19	6.0
CALIFORNIA																									
Bakersfield	493	992.6	1010.5	90	64	76.9	1.3	103	1 53	25 18	0	57 32	5.56	-.49	1.38	2 2	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Bishop	4108	872.3	1011.2	89	47	68.3	1.0	99	2 33	25 19	0	57 32	5.56	-.49	1.38	2 2	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Blue Canyon	5280	839.8	1011.9	73	54	63.7	2.2	87	6 37	24 0	0	57 32	5.56	-.49	1.38	2 2	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Burbank	699	984.4	1010.8	90	62	75.8	4.6	100	16 55	25 19	0	54 58	0.4	-.25	0.4	1 1	0.0	0	1.1	SE	12	SW	1	23 4	1.1
Eureka (U)	43	1012.9	1015.2	65	53	59.1	2.9	85	6 44	24 0	0	57 32	5.56	-.49	1.38	2 2	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Fresno	331	998.6	1010.3	91	59	75.0	1.5	102	6 50	24 21	0	52 50	0.46	-.41	2.24	2 2	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Los Angeles (U)	312	---	---	87	65	75.9	4.9	96	16 59	25 14	0	59 63	0.07	-.20	0.07	1 1	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Los Angeles	99	1006.8	1010.6	82	64	72.7	6.0	91	16 58	25 2	0	61 69	0.03	-.18	0.03	1 1	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Mt. Shasta (R)	3544	892.3	1014.9	75	46	60.2	-.4	93	6 28	24 2	1	57 32	5.56	-.49	1.38	2 2	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Oakland	3	1011.9	1012.2	81	57	69.9	5.6	97	26 50	24 4	0	54 64	0.07	-.02	0.07	1 1	0.0	0	6.6	WSW	30	SE	26	2 2	4.4
Red Bluff	341	998.6	1010.2	92	62	77.2	2.2	108	6 50	24 21	0	42 39	2.1	-.12	2.1	1 1	0.0	0	10.6	NNW	28	N	20	23 4	3.2
Sacramento	17	1009.1	1010.4	89	59	73.8	3.5	103	6 50	25 17	0	51 49	0.08	-.02	0.08	1 1	0.0	0	7.8	SW	30	ESE	27	1 2	1.9
Sandberg (R)	4517	861.8	1010.5	80	60	69.7	-.3	92	1 42	24 1	0	57 32	5.56	-.49	1.38	2 2	0.0	0	12.3	---	---	---	---	---	---
San Diego	19	1006.4	1009.7	81	65	72.7	4.0	91	7 58	25 1	0	62 72	6.2	1.5	6.2	2 0	0.0	0	5.6	NNW	27	S	33	24 4	1.1
San Francisco (U)	52	---	---	75	59	66.8	5.2	92	26 52	23 2	0	57 32	5.56	-.49	1.38	2 2	0.0	0	8.0	---	---	---	---	---	---
San Francisco	8	1011.5	1012.3	81	58	69.5	7.5	96	27 52	25 6	0	54 64	0.05	-.06	0.05	1 1	0.0	0	10.9	WSW	30	NE	19	23 4	3.1
Santa Maria	238	1002.7	1011.6	79	54	66.5	4.4	96	6 46	24 5	0	54 72	1.57	1.45	1.11	3 2	0.0	0	5.9	NNW	33	NNW	12	26 8	2.5
COLORADO																									
Alamosa	7536	774.1	1016.2	75	39	56.6	1.9	85	2 25	16 0	8	57 32	5.56	-.49	1.38	2 2	0.0	0	10.2	---	---	---	---	---	---
Colorado Springs	6173	812.4	1013.7	78	47	62.6	-.6	92	2 34	30 2	0	40 49	1.38	-.31	1.33	5 5	0.0	0	10.2	---	---	---	---	---	---
Denver	5292	838.5	1013.4	79	50	64.4	1.7	93	12 33	30 4	0	38 44	1.51	-.43	1.89	7 2	0.0	0	11.6	---	---	---	---	---	---
Grand Junction	4849	859.1	1012.6	80	54	67.2	-.1	94	2 38	25 4	0	38 39	1.34	-.32	1.90	6 6	0.0	0	9.2	---	---	---	---	---	---
Pueblo	4639	856.8	1010.1	83	52	67.6	2.8	98	2 41	30 9	0	43 48	1.68	-.07	3.5	4 1	0.0	0	8.3	---	---	---	---	---	---
CONNECTICUT																									
Bridgeport	7	1016.7	---	73	55	64.4	-.8	84	26 43	29 0	0	57 32	5.56	-.49	1.38	2 2	0.0	0	6.6	---	---	---	---	---	---
Hartford	169	1010.9	1016.8	72	51	61.9	-.9	87	16 36	12 0	0	56 84	6.49	3.05	1.09	10 3	0.0	0	10.5	---	---	---	---	---	---
New Haven	6	1016.2	1016.6	72	54	63.2	-.4	82	26 39	29 0	0	57 32	5.56	-.49	1.38	2 2	0.0	0	7.0	---	---	---	---	---	---
DELAWARE																									
Wilmington	78	1014.6	1018.0	77	55	65.8	-2.2	90	17 41	29 1	0	57 76	2.91	-.89	1.16	8 1	0.0	0	7.3	SW	---	---	---	12 8	10 5.2
DIST. OF COLUMBIA																									
Washington (U)	72	---	---	79	60	69.2	-.7	93	17 47	29 2	0	57 32	5.56	-.49	1.38	2 2	0.0	0	6.2	---	---	---	---	---	---
Wash. Nat'l. AP	14	1013.4	1017.8	78	60	69.1	-.5	93	17 48	29 2	0	58 70	2.57	1.55	1.00	6 2	0.0	0	8.7	S	26	NNW	8	13 9	8.4
FLORIDA																									
Apalachicola (U)	13	1014.8	---	86	75	80.5	1.6	91	9 68	28 4	0	57 32	5.56	-.49	1.38	2 2	0.0	0	7.9	---	---	---	---	---	---
Daytona Beach	31	1014.7	1016.6	89	72	80.2	-.8	94	8 67	11 9	0	72 80	2.19	4.33	1.77	10 5	0.0	0	8.3	NE	23	NE	4	8 11 11	5.7
Fort Myers	15	1014.4	---	81	72	81.6	-.3	94	15 68	9 28	0	57 32	5.56	-.49	1.38	2 2	0.0	0	6.6	---	---	---	---	---	---
Jacksonville	24	1015.2	1016.7	89	71	80.0	-.8	95	1 60	29 15	0	70 76	4.75	-2.21	1.67	8 5	0.0	0	9.1	NE	32	SE	14	8 10 12	6.2
Key West	5	1012.5	---	89	78	83.2	1.5	92	30 70	4 10	0	57 32	5.56	-.49	1.38	2 2	0.0	0	9.8	---	---	---	---	---	---
Keyland (U)	214	---	---	89	73	81.6	1.5	93	22 70	3 24	0	57 32	5.56	-.49	1.38	2 2	0.0	0	5.6	---	---	---	---	---	---
Miami	7	1013.4	1014.9	89	78	82.4	-.7	93	28 72	3 12	0	74 79	4.82	3.51	1.92	14 12	0.0	0	9.8	ESE	30	E	2	4 15 1	

CLIMATOLOGICAL DATA

SEPTEMBER 1958

State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind				No. of days (sunrise to sunset)				
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 1.01 inch or more With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine		
																			Total	Max depth on ground												
																															M. p. h.	M. p. h.
ft	mb	mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	in.	in.	in.	in.	in.	in.														
IOWA																																
Burlington	694	991.5	1017.3	76	54	65.2	-1.5	88	3	35	30	0	55	73	3.00	-1.13	1.03	7	5	0.0	0	9.3	S	29	W	14	9	9	12	5.7	74	
Des Moines	948	984.8	1016.1	76	55	65.2	-1.6	89	3	38	30	0	55	73	4.06	-.42	1.80	9	6	0.0	0	10.9	SSE	43	N	26	9	11	10	5.6	60	
Dubuque	1065	990.9	1016.7	72	51	61.7	-.6	82	24	36	30	0	52	70	2.06	-2.12	.95	9	1	0.0	0	11.7	ESE	37	N	13	14	10	11	5.7	78	
Sioux City	1094	973.9	1014.8	79	53	65.8	1.4	91	8	36	30	2	52	65	.58	-2.66	.39	3	2	0.0	0	11.1	ESE	37	N	13	14	8	6	4.7	78	
Waterloo	870	991.5	1017.3	76	54	65.2	-.8	88	3	35	28	0	55	73	3.85	-.67	2.55	7	3	0.0	0	12.4	---	---	---	---	---	---	---	---	---	
KANSAS																																
Concordia (U)	1375	965.1	1015.5	79	59	68.8	-.7	94	3	39	30	5	0	71	8.29	5.83	4.11	12	8	0.0	0	7.0	S	28	NE	4	10	13	7	4.8	74	
Dodge City	2594	926.9	1013.5	82	58	70.3	.4	95	3	41	30	7	0	55	63	1.17	-.54	.40	4	5	0.0	0	15.8	S	55	N	29	7	13	10	5.6	70
Goodland	3645	888.3	1013.5	81	50	65.5	.9	100	2	64	29	6	1	49	59	1.39	.02	1.14	3	2	T	0	12.7	S	*30	NNE	26	13	13	4	4.0	---
Topeka	877	980.4	1015.7	80	59	69.5	.5	94	1	36	30	4	0	60	74	3.78	.34	.92	12	5	0.0	0	11.1	S	52	S	2	10	7	13	5.9	53
Wichita	1321	966.5	1014.5	81	62	71.3	-.4	95	24	40	30	5	0	61	73	6.11	2.88	.20	10	8	0.0	0	13.4	S	45	N	16	6	8	16	6.7	54
KENTUCKY																																
Lexington	979	982.7	1018.5	78	58	67.9	-1.6	90	5	46	28	1	0	58	75	2.60	-.23	1.73	7	3	0.0	0	8.8	S	26	SW	30	9	10	10	5.5	66
Louisville	474	998.3	1017.5	81	59	70.2	.0	94	6	48	29	6	0	59	72	4.07	1.37	2.36	9	3	0.0	0	8.9	SE	26	SW	30	9	8	13	5.8	66
LOUISIANA																																
Baton Rouge	64	1012.2	1015.2	88	71	79.6	2.1	96	1	58	29	16	0	71	82	3.32	-1.00	.96	13	11	0.0	0	6.9	E	29	5	5	20	7.6	7.9	---	
Lake Charles	12	1012.5	1014.0	88	74	80.5	1.9	94	1	62	29	11	0	73	82	10.04	5.51	5.49	14	7	0.0	0	8.9	ESE	*29	S	21	1	10	19	7.9	---
New Orleans (U)	9	1012.5	1016.7	87	68	81.5	1.0	93	2	67	29	10	0	79	6.62	.80	1.63	19	8	0.0	0	6.0	E	25	E	5	6	18	7.2	4.8	---	
New Orleans	3	1012.5	1014.9	87	73	80.1	.6	92	2	64	29	5	0	72	80	8.57	1.51	1.35	16	10	0.0	0	8.7	NE	*35	NNW	21	6	8	16	6.8	---
Shreveport	252	1005.4	1014.5	86	69	77.3	-1.5	96	1	52	29	13	0	69	79	8.58	6.36	3.00	12	8	0.0	0	8.6	SE	26	SW	30	9	4	17	7.1	52
MAINE																																
Caribou	624	991.1	1014.1	64	43	53.6	.4	81	15	33	20	0	0	46	77	2.01	-1.49	.95	10	2	0.0	0	10.3	NW	*35	WSW	15	7	9	14	6.4	---
Portland	61	1011.6	1015.6	70	47	58.6	.0	84	26	33	30	0	0	53	83	2.77	-.31	.93	10	2	0.0	0	11.0	S	29	S	10	7	12	11	6.1	60
MARYLAND																																
Baltimore (U)	14	1013.8	1018.4	78	60	69.2	-1.2	91	16	48	29	2	0	58	75	1.27	-2.19	.79	6	1	0.0	0	11.1	S	37	N	27	12	11	7	4.9	72
Baltimore	146	1013.8	1018.4	78	56	66.7	-1.2	91	17	42	29	3	0	58	75	1.27	-2.19	.79	6	1	0.0	0	11.1	S	37	N	27	12	11	7	4.9	72
Frederick	294	991.1	1014.1	64	43	53.6	-.4	81	15	33	20	0	0	46	77	2.01	-1.49	.95	10	2	0.0	0	10.3	NW	*35	WSW	15	7	9	14	6.4	---
MASSACHUSETTS																																
Blue Hill Obs. (R)	629	993.0	1016.3	71	53	60.2	-1.0	87	26	40	29	0	0	79	6.31	2.54	2.51	10	4	0.0	0	14.2	SSW	33	S	10	5	12	13	6.4	54	
Boston	15	1011.2	1015.7	73	56	64.6	.3	89	26	46	29	0	0	54	73	7.50	4.51	2.86	9	3	0.0	0	12.1	WSW	*32	NW	10	6	10	14	6.3	65
Nantucket	43	1016.2	1016.7	67	56	61.5	-.5	75	1	47	29	0	0	56	84	7.20	3.83	3.39	10	5	0.0	0	14.5	WSW	40	N	27	9	7	14	6.3	66
Pittsfield	1153	991.5	1016.7	71	53	60.2	-1.0	87	26	40	29	0	0	79	6.31	2.54	2.51	10	4	0.0	0	14.2	SSW	33	S	10	5	12	13	6.4	54	
Worcester	986	979.7	1014.5	86	69	77.3	-1.5	96	1	52	29	13	0	69	79	8.58	6.36	3.00	12	8	0.0	0	8.6	SE	26	SW	30	9	4	17	7.1	52
MICHIGAN																																
Alpena (U)	587	993.2	1016.3	71	53	60.2	-1.0	87	26	40	29	0	0	79	6.31	2.54	2.51	10	4	0.0	0	14.2	SSW	33	S	10	5	12	13	6.4	54	
Detroit	619	990.2	1016.9	73	55	63.8	-.5	89	4	43	29	0	0	53	71	3.83	1.05	1.24	12	3	0.0	0	10.5	S	42	SW	6	8	7	15	6.2	49
Detroit (Willow Run)	722	988.2	1016.6	73	53	63.3	-1.0	89	4	42	29	0	0	53	73	3.21	1.19	1.15	10	2	0.0	0	8.1	SW	*23	NNW	27	7	8	15	6.5	---
MASSACHUSETTS																																
Blue Hill Obs. (R)	629	993.0	1016.3	71	53	60.2	-1.0	87	26	40	29	0	0	79	6.31	2.54	2.51	10	4	0.0	0	14.2	SSW	33	S	10	5	12	13	6.4	54	
Boston	15	1011.2	1015.7	73	56	64.6	.3	89	26	46	29	0	0	54	73	7.50	4.51	2.86	9	3	0.0	0	12.1	WSW	*32	NW	10	6	10	14	6.3	65
Nantucket	43	1016.2	1016.7	67	56	61.5	-.5	75	1	47	29	0	0	56	84	7.20	3.83	3.39	10	5	0.0	0	14.5	WSW	40	N	27	9	7	14	6.3	66
Pittsfield	1153	991.5	1016.7	71	53	60.2	-1.0	87	26	40	29	0	0	79	6.31	2.54	2.51	10	4	0.0	0	14.2	SSW	33	S	10	5	12	13	6.4	54	
Worcester	986	979.7	1014.5	86	69	77.3	-1.5	96	1	52	29	13	0	69	79	8.58	6.36	3.00	12	8	0.0	0	8.6	SE	26	SW	30	9	4	17	7.1	52
MICHIGAN																																
Alpena (U)	587	993.2	1016.3	71	53	60.2	-1.0	87	26	40	29	0	0	79	6.31	2.54	2.51	10	4	0.0	0	14.2	SSW	33	S	10	5	12	13	6.4	54	
Detroit	619	990.2	1016.9	73	55	63.8	-.5	89	4	43	29	0	0	53	71																	

CLIMATOLOGICAL DATA

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State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind			No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F. or above	No. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Station pressures apply to elevations shown in Table 10b of the annual issue of this publication.

(Base 65°F.)

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Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
OKLAHOMA Ponca City, Kay County	1	5 p.m.			0	0	1	1	Tornado (suspected)	Small tornado funnel reported on ground 4 miles west of Ponca City Airport; moved eastward.
OKLAHOMA Kay County	1	5-6:30 p.m.				6			Wind, rain, hail, and dust	Strong winds of up to 75 m.p.h., heavy rain, and small hail caused widespread damage in Blackwell-Ponca City area. 5 persons injured in automobile crash in heavy dust at leading edge of strong winds. Damage to 2 automobiles estimated at \$950. The other injury resulted from wind-blown limb. Hail, size of marbles, caused damage to roofs, 2 arch girders at church under construction blown over, causing \$10,000 damage. Tree blown over automobile, several plate windows blown out, and metal shed demolished. Trees and utilities received general damage. Storm moved eastward.
OKLAHOMA Bartlesville, Washington County	1	6:45 p.m.	1/4	20	0	0	2	1	Tornado	Small tornado, moving eastward, ripped small path of tree limbs out of tops of trees.
OKLAHOMA Bartlesville, Washington County	1	6:45- 7:30 p.m.						1	Wind, rain, and electri- cal	Strong winds estimated up to 70 m.p.h., damaged roofs and broke windows in at least 15 homes and blew down branches and trees. Lightning damaged utility lines and caused fire in 2 homes. Storm moved eastward.
MONTANA Glacier County	1	8 p.m.	35	*35			1	5	Wind	Damaged shelled grain on ground, mostly barley. Storm moved eastward.
OKLAHOMA Nowata (10 miles east of), Nowata County	1	8:30 p.m.			0	0			Funnels aloft	Civil Defense indicated 5 funnels aloft, moving northeastward.
OKLAHOMA Texas County	1	P.m.							Wind and dust	Strong winds of up to 70 m.p.h., caused damage to trees in Texhoma and several fields of wheat blown out between Texhoma and Guymon. Highways closed, due to zero visibility.
MISSOURI St. Louis	1	Evening				12	3		Electrical	Lightning hit street car and damaged drive-in theater screen, setting it on fire.
MONTANA Toole County	1						1	5	Wind	Damaged about 5 bushels per acre of grain shelled out.
	1									Minor storms also reported at Cherryvale, Coffeyville, near Spivey, and in Montgomery County, Kans.; at Clinton, Diamond, Forsyth, Mt. Grove, and Stanberry, Mo.; and at Grove and Quapaw, Okla.
KANSAS Neosho County	2	Early a.m.							Electrical	Lightning struck 2 rural buildings, a barn near Kimball hit and burned, and farm house east of Erie, damaging roof. Another barn filled with hay near Chanute destroyed by lightning. Also 3 steers killed 10 miles southwest of Chanute.
KANSAS Shawnee County	2	4:10- 5:25 a.m.							Wind	Wind damaged a number of trees in Topeka. Some powerlines broken by falling branches. One gust of wind reached 69 m.p.h., at Weather Bureau Airport Office. Storm moved eastward.
MINNESOTA Bloomington, Hennepin County	2	11 a.m.			1		1	1	Wind	Steel I-beam blown over; struck and killed worker. Storm moved northward.
MONTANA Wilsall, Park County	2	3 p.m.	20	* 1-1/2			1		Hail	Severe crop damage. Storm moved eastward.
MONTANA Dutton (east and north of), Teton County	2	5 p.m.	7	*3			1	4	Hail	Hailstones up to 2 inches. Storm moved eastward.
FLORIDA West Palm Beach, Palm Beach County	2				0	0			Waterspouts and funnels aloft	2 waterspouts and 3 funnel clouds seen near West Palm Beach.
	2									Minor storms also reported near Colwick and Sedgwick, Kans.; at Clinton, Nemo, and West Plains, Mo.; and southwest of Miller, S. Dak.
IOWA Eastern and southwestern portions	3	Afternoon -evening				2	5	3	Wind, electri- cal, and rain	Damaged buildings, highways, utilities; 2 persons injured by lightning.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NEBRASKA Pawnee County	3	5-7 p.m.					4	5	Rain	Rains up to 12 inches at Dubois. Flash flooding destroyed crops and damaged roads and bridges.
WISCONSIN Laona, Forest County	3	5:30 p.m.					4	3	Hail and electrical	Losses from hail. Hail as large as tennis balls.
KANSAS Cloud County	3	6:45- 7:30 p.m.	4	*2			3		Wind	Damage from severe winds reported over large southern portion of County. At Huscher, wind estimated at 85 m.p.h. Telephone and powerlines blown down in places. Barn and shed demolished 4 miles south of Concordia. Storm moved southeastward.
OKLAHOMA Boise City, Cimarron County	3	9-11:30 p.m.							Rain and hail	Heavy rains of up to 11 inches caused damage to newly planted wheat by being washed out or covered with silt. Spotted hail caused damage to row crops.
KANSAS Riley and Pottawatomie Counties	3	Night							Wind	Wind caused tree and roof damage from Manhattan to Wamego. Several powerlines blown down.
	3									Minor storms also reported near Clay Center, Morganville, Onaga, Wakefield, and in McPherson County, Kans.; near Johnson, McCook, Nebraska City, and at Neligh, Nebr.; and at Medford and Sparta, Wis.
MICHIGAN	3-4				1	4	5	1	Electrical, wind, and rain	Storm developed in Upper Michigan on afternoon of 3d and moved southeastward into Lower Michigan during evening. Lightning damaged many structures, destroyed church and several barns. Lightning killed boy in Detroit. In some localities, wind damage and flooding occurred.
UTAH Kanab, Kane County	3-4								Rain	Nearly 2-1/2 inches of rain washed out water main in Three Lakes Canyon, filled basements in south portion of Kanab, and flooded Highway 89.
MICHIGAN Sandusky (4 miles south of), Sanilac County	4	3 a.m.	Short	100	0	0	2	1	Tornado (suspected)	5 large trees uprooted in farm yard, but practically no damage to nearby buildings. Resident reported "noise like a dozen jets" lasting about 20 seconds.
PENNSYLVANIA Western half	4	Morning- evening					4	1	Electrical, wind, rain, and hail	Scattered thunderstorms, some with small hail, caused minor damage to buildings, trees, and utility lines via lightning strikes, a few minor fires, and downed trees caused by high winds. Heavy rains caused some flooding. Storm moved southeastward.
KANSAS Cloud County	4	7:30 p.m. -midnight					5	4	Rain	In addition to river flood losses, heavy rains washed roads, broke power- and telephone lines over county, and caused surface flooding in Concordia.
NEBRASKA Morrill, Scotts Bluff County	4					1	1	1	Electrical	Man burned when struck by lightning.
	4									Minor storms also reported at Colchester, Ill.; near Beloit and Dartmouth, Kans.; at Fairfax, Hannibal, and Monroe City, Mo.; near Osceola, Nebr.; and at Salt Lake City, Utah.
OKLAHOMA Cimarron and Texas Counties	4-5	4 p.m. 4th- 8 a.m. 5th				1	3	6	Rain, and electrical	Heavy rain of 4 to about 9 inches fell over much of southern and western Texas County and eastern Cimarron County. Extensive damage resulted to row crops, planted wheat, and washed away soils. Man injured when he fell from utility pole while refusing transformer during storm. Severe electrical storm in Texhoma caused damage to utilities and appliances. Flooding left cattle lost, bridges washed out, and fields under water.
NEBRASKA Louisville (4 miles west of), Cass County	5	Late afternoon	Short	Narrow	0	0	3	1	Tornado	Some damage to buildings, and bales of hay removed from barn.
MINNESOTA South-central and southeast- ern portions	5	6 p.m.	3	100	0	0	3	2	Tornado (sus- pected), rain, and hail	In Hollandale area, circular twisted path through many cornfields gave evidence of tornado. 3 farms hit, with minor property damage. Stack of 500 straw bales torn apart, many intact bales found 200 yards away. Tops of trees

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MINNESOTA (Cont'd.)										and a few utility poles twisted off. Moderate to heavy rain fell during late afternoon throughout south-central and southeast with some local flooding and washing of fields. Some hail reported in Faribault County during late evening. Storm moved northeastward.
COLORADO Arkansas Valley	5	8:45 p.m.					°3		Electrical and rain	1 to 3 inches of rain fell in Manzanola area, causing flooding which damaged roads, canals, and fields. Power- and communication lines put out of order for a while by lightning. Storm moved southeastward.
IOWA Cass, Adair, Madison, Audu- bon, and Guthrie Counties	5	Evening					6	5	Rain	Washed out highways, railroads, and utilities; flooded homes and crops.
KANSAS Finney County	5	Evening				1			Electrical	Lightning bolt struck house in Garden City, damaging T.V. set, large part of the wall, digging gaping hole in ground beside house, and breaking 9 windows. The exploding glass injured 10-year old girl.
	5									Minor storms also reported in Deer Park and Sidney Valley areas, Colo.; and near Oakdale and at Oxford, Nebr.
	5-6									Minor storms reported in Clay, Grant, Polk, Pope, Stevens, Swift, and Wilkin Counties, Minn.
CALIFORNIA Central and southern portions	5-7				2	1	5		Electrical, hail, rain, and wind	Moist air flowing northward from tropical storm off coast of Lower California caused unusually intense thunderstorm activity. Storms most severe in southern San Joaquin Valley, northern Santa Barbara County, San Bernardino Mountains, and Mojave Desert. Lightning strikes caused many power failures, and scores of grass, brush, and timber fires. Major fires near Hornitos, Mariposa County (1,000 acres); Pastoria Canyon, southeast of Bakersfield (500 acres); near Lebec, Kern County (400 acres); and Indian Creek Canyon, east of Hemet (750 acres). Lightning struck oil storage tank near McKittrick, burning 5,000 gallons before controlled, and caused other small fires in oil fields in vicinities of Taft, Paloma, Cuyama, and Santa Paula. Lightning-started fire burned house in Fresno. Hail up to marble-size fell in parts of Los Angeles, San Bernardino, and Riverside Counties. Heavy rains accompanied thunderstorms with flash floods in parts of Mojave Desert and Coast Range between Santa Maria and Maricopa. Flash floods blocked Highways 395 and 466 with mud and silt near Barstow; Santa Fe Railroad bed washed out 7 miles east of Boron. Approaches to new freeway at Barstow washed out, and \$50,000 repaving project destroyed. Flash floods inundated Highway 6 between Red Rock and Ricardo, and other desert highways washed out or covered with mud and silt that area. Portion of Highway 33 between Taft and Maricopa washed out and 2 underpasses flooded at Delano. At Santa Maria, 1.11 inches of rain fell during thunderstorms on 7th, one of heaviest September rainfall records. Strong winds accompanying thunderstorms damaged 13 buildings in Camp Irwin at Barstow, and demolished industrial building on outskirts of town. Locally strong winds demolished several equipment sheds on ranches near Buttonwillow; several sheds blown down on turkey ranch near Kerman, killing 500 turkeys, and at Hanford, winds blew down trees, powerlines, and buildings. Automobile crushed by falling tree at Taft. Damage to \$50,000,000 raisin crop drying in fields in San Joaquin Valley only averted by dry weather following storms. At Big Bear Lake, 2 children killed and 1 injured when lightning struck small shed where they had sought shelter.
KANSAS Russel County	6	Early morning							Electrical	3 places near Lucas in northeastern Russell County struck by lightning and resulted in damage. Large barn, baled hay, and 2,000 bushels of wheat burned at one place. House wiring, lamps, and T.V. sets damaged at 2 homes. Storm moved southeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NORTH DAKOTA Barnes County	6	4:30 p.m.			0	0	3	3	Tornado	Funnel touched ground and picked up car north-east of Valley City. Barn destroyed on farm 17 miles north of Valley City.
NORTH DAKOTA Cass County	6	5:15 p.m.			0	0			Funnel aloft	Funnel observed just west of Fargo, forming on leading edge of cloud. Hanging very low but not touching ground.
NORTH DAKOTA Richland County	6	6 p.m.						4	Hail	Golf-ball size hail.
TEXAS Alice (5 miles north of), Jim Wells County	6	6:40 p.m.			0	0			Funnel aloft	
TEXAS Orange Grove, Jim Wells County	6	7:10 p.m.			0	0			Funnel aloft	
KANSAS Comanche County	6	8 p.m.				2			Electrical	Bolt of lightning struck near Coldwater, causing slight injury to father and son who were installing electric pump in well house.
NEVADA Las Vegas, Clark County	6	8:30 p.m.							Wind	Winds up to 55 m.p.h., damaged numerous signs and caused slight damage to buildings.
KANSAS Coffey County	6	Night							Rain	Roof of business building in Cherryvale collapsed during very heavy fall of rain.
FLORIDA Vero Beach, Indian River County	6				1				Electrical	1 person killed by lightning.
	6									Minor storms also reported in Western Iowa; and near Argonia, Kans.
NEW YORK	6-8	P.m. 6th- p.m. 8th			1		5		Wind, rain, and electrical	Stormy conditions across State as very active cold front moved southeastward. Many sections experienced destructive winds, lightning, and "gulley washing" rains. Damages generally in nature of downed limbs and trees on power- and communication lines, demolished real property, washouts, blocked highways by debris, and power failures. 1 death at Stockton when contact made with downed powerline in front yard. In Long Island Sound, 50 sail boats capsized. Accurate damages unknown, but estimated in excess of \$100,000 statewide.
TEXAS Calallen, Nueces County	7	1:30 p.m.			0	0			Funnel aloft	Observed moving northwestward.
MARYLAND Talbot and Dorchester Counties	7	2:30-3 p.m.			0	0	1	1	Waterspouts	At least a dozen waterspouts in Choptank River from mouth of Tred Avon River westward for about 2 miles down the Choptank. North American Star Boat Championship race was being sailed at that time and only 3 boats able to finish race out of 40 entries. Sailors describe waterspouts as being from 10 to 100 feet in diameter and from water to lower deck of clouds.
CONNECTICUT Central portion	7	Afternoon			2	11	4		Electrical, wind, and rain	Violent thunderstorms affected much of State, with damage largely confined to central portion. Casualties suffered in multiple car crash at Wallingford blamed on heavy down-pour at time. Lightning struck about a dozen homes, with greatest single damage of \$2,500 at Waterbury. Winds with gusts to 50 m.p.h., and lightning downed trees, limbs, and utility lines to cause widespread power failures. Precipitation of 1 inch and locally 2 inches within less than 3 hours resulted in washouts of sidewalks and streets at Ansonia and Southington. Storm moved east-northeastward.
MICHIGAN Benzie County (southwestern portion)	7	Afternoon	8				1	4	Hail	Hail up to 3/4 inch in diameter caused considerable damage to apple crop, and lesser losses to peaches and pears. Storm moved eastward.
OKLAHOMA Goodwell, Texas County	7	4 p.m.	3	100	0	0	1	1	Tornado and funnels aloft	Tornado bounced through open country just west of Goodwell. Unconfirmed reports indicated trio of funnels. 1 funnel reported southeast of Goodwell and the other east of Texhoma. Storm moved westward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
CONNECTICUT Willimantic (2 miles north- northeast of), Windham County	7	4:10- 4:20 p.m.	1-1/4	100	0	0	5		Tornado	Tornado touched ground at poultry farm in Mansfield, Tolland County, and moved about 1 mile to Windham County Airport, leaving ground shortly thereafter. Funnel cloud not seen. At poultry farm 1 large coop unroofed and walls blown out with pieces of roof scattered in 90° arc between north and east and from 50 to 500 feet away from coop. 4 homes across street damaged by roof debris; 1 with large hole knocked in roof. Second large coop moved 12 inches off northeast foundation; third coop 50 feet northwest of above 2 untouched. Farmer described inside pressure in his home during storm passage which blew hinged windows outward. Damage to poultry farm estimated at \$25,000, including loss of some chickens and damage to nearby dwellings. At Airport, about 12 small aircraft variously damaged with 2 considered total losses. Quonset-type hangar moved 4 feet at southwest corner of foundation, east wall blown out, and metal roof opened up in places as if by giant can opener. Roof on adjoining office building lifted up as much as 6 inches off west wall. Damage at Airport estimated at \$25,000 to aircraft and \$25,000 to buildings. Short distance east of Airport, small garage unroofed and blown over. Several TV aerials and chimneys downed, and numerous trees twisted off well above ground. Total storm damage around \$85,000. Crop damage negligible. At least 3 persons in or near storm path described evidence of inside pressure in buildings. Tornado moved east-northeastward.
MASSACHUSETTS Taunton, Raynham, and Duxbury Beach, Bristol and Plymouth Counties	7	4:15 p.m.	4	65	1	0	3	1	Tornado	Described as twister with shrill whistle and flying debris in erratic narrow 4-mile path east-northeastward through Taunton and Raynham, accompanied by excessively loud thunder. Damage limited mostly to trees, limbs, powerlines, and a chimney. Another development in same line tracked by radar later in vicinity of Duxbury Beach, with tree-top damage in narrow path. Sailboat disappeared offshore and is presumed lost with 1 death. Radar echo showed spiral band. Track lines up with tornado reported earlier near Willimantic, Conn.
	7									Minor storms also reported at Carlstadt and East Rutherford, N. J.; and at La Verkin, Utah.
LOUISIANA Burrwood (near), Plaquemines Parish	8	1 p.m.			0	0			Funnel aloft	
MASSACHUSETTS Buzzards Bay (near Cape Cod Canal), Barn- stable County	8	2:35 p.m.	2	75	0	0	1	1	Waterspout	Formed on Buzzards Bay, moved east-northeastward across Mashnee Village and Phinney's Harbor to Monument Beach. Little or no damage to boats overturned or beached. Buffeted automobile near beach but dissipated quickly over land after raising sand, gravel, leaves, and debris into its funnel
LOUISIANA Lake Charles (15 miles northeast of), Calcasieu Parish	8	4:28 p.m.			0	0			Funnel aloft	
NEW YORK Stirling Basin- Shelter Island- Greenport area, Suffolk County	8	5 p.m.			0	0			Tornado, waterspout, electrical, and rain	Thundershower and rain at time. Apparently very small and skipped along. Picked up some objects. Whirling funnel, and when over Bay was definite waterspout; damages not known, but small. Thunderstorm and rain at same time.
MINNESOTA Duluth, St. Louis County	8	10:34 p.m.	10	*8			4	1	Hail and rain	Large hailstones, 1/2 to 4 inches in diameter, fell intermittently during 30-minute period. Roofs and awnings damaged, greenhouse windows smashed, gardens laid low, and hundreds of cars dented. Total rainfall during 3-hour duration an official 0.81 inch. Storm moved northeastward.
	8									Minor storms also reported at Nampa, Idaho; and near Ft. Pierre and Pierre, S. Dak.
IDAHO Pocatello area, Bannock County	9	Afternoon							Electrical and rain	At least 9 strikes in city and nearby community of Alameda. Considerable damage to major electric appliances. Power transformer

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
IDAHO (Cont'd.)										and TV cable filters burned out, interrupting service. Rain at Airport 0.70 inch.
IOWA Southwestern portion	9	Afternoon					4	1	Electrical	Burned large barn and contents and damaged several homes.
NEW MEXICO Santa Rosa (4 miles north of), Guadalupe County	9	4:40 p.m.			0	0	1	1	Tornado and hail	Funnel down for several minutes over waste land. Hail accompanied storm and damaged neon signs. Storm moved south-southeastward.
MICHIGAN Van Buren, Cass, and St. Joseph Counties	9	5:45 p.m.	40				5	6	Wind and hail	Winds estimated to have reached over 100 m.p.h., damaged factory, many homes, and other buildings in Hartford. Hundreds of fruit trees in nearby commercial orchards uprooted, and large proportion of big apple and peach crop lost due to wind and hail. Lesser wind damage also reported in other localities of Van Buren, Cass, and St. Joseph Counties. Damage by wind \$500,000, by hail \$300,00 included in total. Storm moved southeastward.
COLORADO Kit Carson County	9	5:55 p.m.			0	0			Tornado	Small tornado touching ground reported by Ground Observer Corps, 12 miles northeast of Flagler.
ARIZONA Tucson, Pima County	9	6 p.m.				1	4	1	Wind, rain, and electri- cal	About \$10,000 wind damage and \$4,000 water damage. Pedestrian injured on wet street. Storm moved northward.
KANSAS Seward County	9	7:30-8 p.m.	10	880				4	Wind, rain, and hail	Area east of Liberal damaged by 1/2 inch hailstones that accumulated to 4 inches deep. Wind and dashing rain caused additional crop losses. Some new wheat covered with silt by rains. Most damage from hail. Storm moved southwestward.
	9									Minor storms also reported in central Iowa; at Sublette, Mo.; near Lakeside, Nebr.; at Coweta, Okla.; and near Fedora, S. Dak.
KANSAS Reno County	10	3-6 a.m.							Wind	Some damage to trees, power- and communication lines, and TV antennas resulted from 55 to 60 m.p.h., winds in and near Hutchinson. Storm moved southeastward.
IDAHO Idaho Falls (near), Bon- neville County	10	Late forenoon							Electrical	Firemen worked 11 hours to save 40 tons of hay, 10 tons of straw, and granary full of grain 3-1/2 miles west of New Sweden, but 80 tons of hay and 10 tons of straw burned. Another 5 tons of hay burned 1 mile south of Ammon.
WASHINGTON Western portion	10	11 a.m.- 2 p.m.					4		Wind and electrical	Wind speeds from 50 to 60 m.p.h., damaged power- and communication lines. Property damaged by falling trees in a few instances. Several forest fires started by lightning.
	10									Minor storms also reported at Conway, Kans.; in north-central and northeastern Mass.; near Warrensburg, Mo.; at Hamilton, Mont.; at Fairview, Okla.; and at Promontory Point, Utah.
NEW MEXICO Southern portion	10-13, 21-23, 26-28								Rains	Heavy rains, with 24-hour totals from 2 to estimated 6 inches, fell at many points. Principal damage to cotton, ranging from \$100 thousand to well over \$1 million. Considerable damage to highways, streets, and roads in many localities.
TEXAS Jefferson County Airport (5 miles northeast of), Jefferson and Orange Coun- ties	11	8:50 a.m.			0	0			Funnel aloft	Observed for 5 minutes.
NEBRASKA Harrison to Dalton, Sioux and Cheyenne Counties	11	Afternoon	100	*2-3			5	5	Hail	Very severe hailstorm. Hailstones up to size of baseballs. Ground covered several inches deep at Angora. Damage would have been much greater if this storm had occurred earlier, before main crops harvested. Storm moved south-southeastward.
MONTANA Northern Flathead Valley, Flat- head County	11	7:55 p.m.	20	*5-10		1	4	3	Wind and electrical	Wind peak estimated at 100 m.p.h. Wind speed 67 m.p.h., at Flathead County Airport when power failed. Woman injured by lightning. Boat docks and installations damaged on Whitefish Lake. Storm moved northwestward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
LOUISIANA Lake Pontchar- train, Orleans Parish	12	9:47 a.m.			0	0			Funnel aloft	
TEXAS Jefferson County Airport (southwest of), Jefferson County	12	10:45 10:53 a.m.			0	0			Funnel aloft	Observed moving southeastward.
ARIZONA Maricopa County	12	2 p.m.					5	1	Wind and rain	\$250,000 water damage to roads in Maricopa County. \$10,000 water damage to miscellaneous property in Phoenix and Glendale. \$25,000 wind damage to aircraft at Williams Air Force Base.
IDAHO Idaho Falls and Hammett, Bonneville and Elmore Counties	12	During day							Rain, wind, and electri- cal	Hard windstorm near Hammett damaged hay, beans, and clover seed. Lightning strike on sub- station in Idaho Falls about 7:45 a.m., cut power for part of city, and at noon large tree limb blown across powerlines, causing outage in another section of city.
OREGON Willamette Valley (northern portion)	12		30- 40	*15- 25			4	2	Wind	Gusty, high winds blew down several trees, with practically all reported damage occur- ring to powerlines and other power installa- tions. Storm moved northeastward.
	12									Minor storm also reported at Ephraim, Utah.
FLORIDA Miami area, Dade County	13	8:40 a.m.			0	0			Funnel aloft	Cloud seen 11 miles north-northeast of Miami Airport.
	13									Minor storm also reported near Sturgis, S. Dak.
TEXAS Galveston (5 miles south of), Galveston County	14	1 p.m.			0	0			Waterspout	
TEXAS Amarillo (45 miles east of), Carson County	14	6 p.m.			0	0			Funnels aloft	3 funnels observed.
WISCONSIN Kendall, Monroe County	14	7:30 p.m.			4		3	1	Wind, rain, and electri- cal	4 persons killed in aircraft crash during thunderstorm.
TEXAS Waller and Grimes Counties	15	1:15 p.m.			0	0			Funnel aloft	Observed between Hempstead and Navasota
MISSOURI Cabool (3-1/2 miles south- east of), Texas County	16	12:40 p.m.	1/4	100	0	0	3		Tornado and rain	Farm home and several buildings badly damaged. Heavy rains and flash flooding accompanied storm which moved northeastward.
OKLAHOMA Ponca City, Kay County	16	12:50 p.m.			0	0			Funnel aloft	Rope-type funnel cloud reported moving north- eastward just east of Ponca City, dipped to within 30 feet of ground. Roar heard and some small debris whirled in air.
KANSAS Cherokee County	16	1:30 p.m.	5		0	0			Wind and funnel aloft	Funnel cloud moving east-northeastward sight- ed over Galena which did not come to ground un- till it was about 1/2 mile east of Missouri line.
MISSOURI Joplin (4 miles west of) Jasper County	16	2:15 p.m.	1/2	200	0	0	3		Tornado	Reported as funnel aloft over Galena, Kans., then touched ground near Joplin. Several farm buildings badly damaged.
MISSOURI Eldorado Springs, Cedar County	16	3:30 p.m.	3	50	0	0	5	3	Tornado	Several farm buildings damaged.
ARKANSAS Wheatley (3 miles north of), St. Francis County	16	4:30 p.m.			0	0			Tornado	Small funnel cloud dipped on farm, overturning large henhouse, destroying several trees, and flattening field of rice.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MISSOURI St. Louis County	16	4:50 p.m.	3/10	20	0	0	5		Tornado and rain	Several homes badly damaged. Heavy local flood- ing in southern part of County following heavy rains. Storm moved northwestward.
TEXAS Sealy, Austin County	16	5:05 p.m.			0	0			Funnel aloft	
TEXAS El Campo (west of), Wharton County	16	5:30 p.m.			0	0			Funnel aloft	
INDIANA Dubois County	16	7:30 p.m.					4	1	Wind and hail	Wind damaged trees, antennas, and electric lines (5,000). Hail damaged cars and roofs (\$5,000).
TENNESSEE Obion County	16	7:30 p.m.				1		1	Wind	At Union City, home roof damaged, TV antennas and trees downed, and gas station sustained minor structural damage. 1 man injured by flying glass. Between Troy and Rives, barn and several farm outbuildings blown down.
OKLAHOMA Tulsa, Tulsa County	16	P.m.				4		1	Rain	Numerous traffic accidents resulted during heavy rainstorm.
INDIANA Gibson County	16	Evening					4	1	Wind	Several buildings damaged and some trees and wires torn down.
	16									Minor storms also reported near Paragould, Ark.; at Lewiston and Orofino, Idaho; at Galena, Kans.; and at Loose Creek, Mo.
NEW ENGLAND Central and northern portions	16-18				2	Many	4	1	Rain	1-to 4-inch rainfall caused numerous flooded cellars, other minor troubles, and a few power failures. 2 deaths and many injuries in auto- mobile accidents blamed on storm.
ALABAMA Greenhill, Lauderdale County	17	3:45 a.m.					4	1	Electrical	Lightning set fire to store.
TEXAS Orange (3 miles south- west of), Orange County	17	10 a.m.			0	0			Funnel aloft	
TENNESSEE Blountville (near), Sulli- van County	17	11:20 a.m.			1		1	1	Electrical	Man working outdoors struck by lightning and killed.
CONNECTICUT Litchfield County	17	All day					4		Rain	Heavy rains, which yielded up to 4 inches in 36 hours to northwest and north-central sec- tions, caused extensive telephone failures at Winsted due to seepage into underground cables. Also at Winsted, new construction work badly damaged by washouts of earthen fill.
ALABAMA Sumter County	17	2:30 p.m.					4	1	Electrical	Large barn with 10,000 bales of hay destroyed by lightning-set fire about a mile from Lake Holalla.
NORTH CAROLINA Davidson County	17	5:45- 6:15 p.m.					4		Electrical	Lightning struck and burned 2 buildings in Lexington area; damaged power and telephone facilities.
VIRGINIA New Baltimore and Buckland area, Fauquier County	17	7 p.m.	10				4		Wind	Severe windstorm slashed through rural section, cutting power- and telephone lines, felling trees, unroofing and damaging a number of farm buildings. Storm moved east-northeast- ward.
MARYLAND Elkton, Cecil County	17	P.m.					5	1	Electrical	Lightning struck barn on farm, destroying structure and its contents and milking parlor. Tons of stored hay, 1,500 bushels of oats and barley, and bull and several heifers lost. A silo collapsed on car.
PENNSYLVANIA Lebanon and Chester Counties	17	Night					5	1	Electrical	Several barns and contents fired by lightning. Storm moved southeastward.
	17									Minor storms also reported at Shellhorn and Troy, and in Lauderdale County, Ala.; and in Puget Sound area, Wash.
INDIANA South Bend (near), St. Joseph County	18	8:21 a.m.			0	0			Waterspouts	5 miles north of Mermaid Intersection.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
	18									Minor storm also reported at Mobile, Ala.
FLORIDA Key West, Monroe County	19	2:12 p.m.			0	0			Waterspout	Observed moving westward.
TEXAS San Antonio (24 miles northwest of), Kendall County	19	5:40 p.m.			0	0			Funnel aloft	
LOUISIANA Baton Rouge Airport (3 miles east- southeast of), East Baton Rouge Parish	19	6:05 p.m.			0	0			Funnel aloft	
TENNESSEE Memphis, Shelby County	19							1	Rain	Rushing water from cloudburst swept stalled car into drainage ditch and over 100 yards downstream. Several streets flooded and 45 persons evacuated from homes in low areas threatened by flooding.
WASHINGTON Eastern and Columbia Basin areas	19					3	3		Wind and dust	Visibility reduced to zero by blowing dust. 3 persons injured in automobile accidents during duststorm. Rather severe wind erosion in some fields.
	19									Minor storm also reported at Holly Bluff, Miss.
TENNESSEE Hardeman County	19-21	11 a.m. 19th- 9 a.m. 21st							Rain	Over 9 inches of rain fell during 46-hour period, damaging crops, especially open cotton and corn, and causing minor damage to homes.
TENNESSEE Minor Hill and Stella communities, Giles County	20	4 p.m.						1	Wind	At Minor Hill, wind unroofed house and barn and blew away porch and several outbuildings. At Stella, 2 house roofs and 1 barn roof damaged and second barn damaged.
ALABAMA Lauderdale County	20	4:30 p.m.	1	Narrow	0	0	4	1	Tornado	Just north of Elgin Cross Roads, tornado crossed old Lexington Road and Highway 101; damaged 6 homes and 1 barn; moved northeastward.
TEXAS Freer, Duval County	20	6:40 p.m.			0	0			Funnel aloft	
KANSAS Ellis County	20	7-8 p.m.	12	*2			5	4	Hail and wind	During hour-long thunderstorm, hail fell for about 10 minutes near 7:30 p.m. Stones ranged in size from marbles to 2 inches in diameter. Path of hail from northwest of Ellis toward southeast with Ellis about center. Building, cars, trees, and growing crops hard hit by hail which covered ground afterwards. Hail accompanied by very hard straight wind, with gusts estimated at 80 m.p.h. Damage due largely to hail. Storm moved southeastward.
TEXAS Benavides, Duval County	20	9:50 p.m.			0	0			Funnel aloft	
	20									Minor storms also reported near Diamond Springs and Ionia, Kans.
KANSAS Leavenworth County	21	5 a.m.							Electrical	Last covered bridge in Kansas, a few miles east of Springdale, over Big Stranger Creek, struck by lightning and burned. Bridge was 99 years old.
TEXAS West Orange, Orange County	21	8:10 a.m.			0	0			Funnel aloft	
GEORGIA Austell, Cobb County	21	A.m.	Short	30	0	0	3	1	Tornado (suspected)	Witnesses reported seeing small funnel-shaped cloud swoop down momentarily and then rise up again. Considerable damage to trees, roofs, and small outbuildings.
MISSISSIPPI New Albany, Union County	21	12:10 p.m.	5	100	0	2	4	2	Tornado	Moved northeastward from 5 miles southwest of town to western edge of town where it lifted. 2 homes destroyed and about 20 damaged.
WASHINGTON Western portion	21						4		Wind	Wind speeds from 40 to 50 m.p.h., caused a number of power and communication failures.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
	21									Minor storm also reported in Lee County, Ala.
LOUISIANA Chef Menteur (east of), Orleans Parish	22	2 p.m.			0	0			Funnel aloft	
	22									Minor storm also reported at Yuma, Ariz.
CALIFORNIA San Joaquin Valley	22-23						3		Rain and wind	Moderate to locally heavy rains with locally strong winds damaged rice, alfalfa seed crops, and drying raisins. Streets flooded in Bakersfield, and flash floods caused considerable damage to county roads in Taft-McKittrick areas. Strong winds blew down 2 large trees in Fresno, and first snow of season fell in high Sierras.
FLORIDA West Palm Beach, Palm Beach County	23	10 a.m.			0	0			Waterspout	Sighted 5 miles offshore.
FLORIDA Key West, Monroe County	23	1:52 p.m.			0	0			Funnel aloft	
OKLAHOMA Hollis (5 miles east of), Harmon County	23	5:05 p.m.			0	0	1	1	Tornado (suspected)	
NORTH DAKOTA Kidder County	23	7:11 p.m.			0	0			Funnel aloft	Observed moving north-northeastward.
PENNSYLVANIA Sharletsville, Berks County	23	Night					4	1	Electrical	Barn fired by lightning.
WASHINGTON Eastern and Columbia Basin areas.	23				0	0	2		Dust devil	A large dust devil in vicinity of Soap Lake damaged small farm building and powerlines in small area.
	23									Minor storms also reported at Genesee, Lewiston, and Orofino areas, Idaho, and at Bozeman, Mont.
ARIZONA Mesa (8 miles northeast of), Maricopa County	24	10 a.m.	4		0	0	1	1	Tornado	Well-developed funnel cloud skipped eastward across open desert.
UTAH Kanab (4 miles north of), Kane County	24	A.M.							Rain	Heavy rain caused flooding of Kanab Creek, washing out bridge on Highway 89.
FLORIDA Fort Myers, Lee County	25	4:59 p.m.			0	0			Funnel aloft	Reported by pilot near Ft. Myers.
CALIFORNIA Berkeley, Alameda County	26	Morning				1	2		Wind	Northerly winds, estimated at 40 to 50 m.p.h., along narrow path near Berkeley Hills blew down powerlines and trees, and caused some damage to sign boards and other light structures. Woman injured when struck by falling tree.
TEXAS Jefferson County Air- port (15 miles north- west of), Orange and Hardin Counties	26	10:57 a.m.			0	0			Funnel aloft	
TEXAS Jefferson County Air- port (12 to 15 miles northwest of), Orange County	26	11:26 a.m.			0	0			Funnel aloft	
ARIZONA Tempe, Mari- copa County	26	3 p.m.				1	3	1	Wind and rain	Wind unroofed home. Heavy rain caused traffic accident.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
	26									Minor storm also reported at Milton, Pa.
SOUTH CAROLINA Coastal areas	26-27	9 p.m. 26th- 8 a.m. 27th					5	2	Hurricane Helene	Major part of damage north of Myrtle Beach to North Carolina Coast. Some evidence of tornadic developments reaching down to tree tops. Gusts to 100 m.p.h., in Ocean Drive, Cherry Grove, and East Cherry Grove beaches near North Carolina border.
SOUTH CAROLINA Columbia, Richland County	27	6:05 p.m.			0	0			Funnel aloft	Pilot reported had to divert plane to west to avoid contact with funnel cloud.
NORTH CAROLINA Coastal sec- tions	27						7	6	Hurricane Helene	Storm center lay from 10 to 50 miles offshore from 10 a.m., to midnight, moving northeastward up coast. Highest wind gusts reported on coast at 144 m.p.h., and most anemometers on coast reached at least 100 m.p.h., in area from South Carolina line to Hatteras. High water damage relatively small, because height of storm was at low tide time, and highest winds either offshore or parallel to coast at most places. Most of crop damage to corn in fields, most property damage to beach property. Beach damage greatest in area near Wilmington. Storm moved northeastward.
VIRGINIA Capes area	27-28	7:15 p.m. 27th- 5 a.m. 28th							Hurricane Helene	Hurricane Helene passed 130 nautical miles southeast of Hampton Roads, at 10 p.m., on 27th. Gale winds occurred from Hampton Roads, Va., to Manteo, N. C. Peak gust during storm reported at Norfolk 56 m.p.h., from north-northeast at 8:23 p.m. Damage minor in Hampton Roads area. Utility wires downed and minor structural damage. Storm moved northeastward.
MASSACHUSETTS NEW HAMPSHIRE, and MAINE	27-28						4	1	Rain	1-to 4-inch rainfall caused minor flooding, washouts, and a rash of automobile accidents.
FLORIDA Tallavast, Manatee County	28	5 a.m.	** 150	Narrow	0	0	3		Tornado	Short duration tornadic storm heavily damaged 1 nursery building, but did not damage nearby structures.
OKLAHOMA Waynoka, Woods County to Car- men, Alfalfa County	29-30	During night						1	Wind	Strong winds with gusts up to 60 m.p.h., caused light damage to roofs, shingles, TV antennas, trees, and broke some windows.
FLORIDA Miami, Dade County	30	Afternoon			1	1			Electrical	Lightning bolt killed 1 person and injured another at Miami Springs Country Club.
FLORIDA West Palm Beach, Palm Beach County	30	Afternoon			0	0			Funnels aloft	4 funnel clouds sighted over ocean east of West Palm Beach Airport.
	30									Minor storm also reported at Sedan, Kan.

DELAYED REPORTS

	August									
KANSAS Clay County	16	5:20 a.m.					4		Electrical	Farm house near Green struck by lightning, although equipped with lightning rods this spring. Entire house burned. Storm moved eastward.
NEVADA (near), Hum- boldt County	21	6-6:30 p.m.	15	*2				4	Hail	Hailstones up to 1 inch in diameter fell in central Quinn River Valley, severely damaging seed crops. Storm moved northeastward.
COLORADO Pitkin County	28	6:20 p.m.					4		Electrical	Lightning struck ranch home at Woody Creek, causing fire which burned home and all contents.

* Miles instead of yards.

** Yards instead of miles.

° Includes crop damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

NORTH ATLANTIC TROPICAL STORMS, SEPTEMBER 1958

Howard C. Sumner
Marine Section, Office of Climatology
U. S. Weather Bureau

Four hurricanes and one tropical storm moved over the North Atlantic during the month of September, 1958. There are only seven seasons, in a period of record extending back to 1886, when as many as four hurricanes have been detected in the area during a single month. A record number of five hurricanes in a single month were recorded in August of 1893 and in September of 1955.

In spite of the large number of severe storms, the figures for damage and loss of life throughout the area were unusually low, as the storms, at the times of their greatest intensities, remained at sea or did not pass over heavily populated areas. Hurricanes Fifi and Ilsa ran their entire course over the open ocean, Helene skirted the North Carolina coast, and the winds of Ella, while of hurricane force as the center crossed western Haiti and southern Cuba, fell to tropical storm force as the storm crossed the Gulf of Mexico and moved onto the Texas coast. Tropical storm Gerda passed over western Haiti, with no winds over 50 m.p.h. reported. Below are summaries of the two hurricanes that reached coastal areas of the United States.

HURRICANE ELLA

August 30 - September 6, 1958

An easterly wave of unusual intensity moved into the Lesser Antilles on Saturday afternoon, August 30, 1958. Upon arrival of the wave in the eastern Caribbean region, intensification was evident in a small low pressure center with a wind circulation and speeds to 35-40 m.p.h. and a central pressure of 1010 millibars (29.82 inches). An additional pressure drop of about 2 millibars occurred as the storm moved into the Caribbean Sea, a short distance west of Dominica.

Reconnaissance aircraft flew into the storm at 0430 G.M.T. on August 31 and, by radar, located a center near 16.4°N., 64.7°W. with maximum winds of 55 to 60 m.p.h. Prior to this reconnaissance, at 0145 G.M.T. a wind observation of 45 knots was reported from the northwest quadrant of the storm by PAA Flight 201 enroute San Juan to Port of Spain, Trinidad. The first advisory on Ella was issued at 0403 G.M.T., August 31. At that time gale warnings were raised to whole gale for the southern sections of the Virgin Islands, Puerto Rico, and the Dominican Republic, and gale warnings were continued for adjacent areas. Wind speeds in Puerto Rico and the Virgin Islands reached between 30 and 40 knots in some instances.

Later reports indicated hurricane force winds as Ella moved along a westward course 140 miles south of Puerto Rico. Hurricane warnings were put into effect for the southern portions of the Dominican Republic and Haiti. During the morning of September 1, the hurricane turned to a more north-westward path and crossed Haiti's southern peninsula. Continuing on a track south of the Windward Passage, the hurricane moved along the southern coast of Cuba and out over the Gulf of Mexico, with a large poorly defined center. There was no evidence of hurricane force winds after the storm left southern Cuba. Ella passed some 160 miles south of Key West on the morning of September 3. Highest winds near the center at the time were only 40 to 50 knots, but higher speeds associated with squalls were scattered over the north and east portions of the storm system. Reports of winds over 50 knots

came from the Straits and Keys at distances up to 250 miles from the center. The highest wind recorded at Key West International Airport was 59 m.p.h. from the southeast at 0558 E.S.T. on September 3. The highest wind reported over the Gulf of Mexico west of longitude 85 degrees was 55 knots reported by the JEAN LYKES near 24.5°N., 85.5°W. late on September 3.

As Ella approached the Texas coast, there was some minor flooding of low and exposed places on Galveston Island, Bolivar Peninsula, the Kemah-Seabrook area, the Texas City-La Marque area, and the Matagorda Peninsula. The center passed inland near Corpus Christi during the early morning hours of the 6th, with a number of stations in the area reporting wind gusts of 40 to 50 m.p.h.

Tides of 3 to 4 feet above mean low water, spotty rainfall ranging as high as 13.60 inches in 3-1/2 days at Galveston Airport, and wind gusts to 75 m.p.h. in some areas resulted in flooding and damage at a number of localities along the Gulf Coast.

Damage in Florida was confined almost entirely to the Keys and was limited to signs, antennas, fences, and shrubbery. Damage to four house trailers which were overturned at night on Stack Island seems to have been the result of a local rotary wind, such as that in a tornado or waterspout, although neither was observed. Damage was slight in Alabama, Mississippi, and Louisiana and restricted principally to the rice crop in southwestern Louisiana. Very little damage was reported in Texas other than the loss of a shrimp trawler on the Galveston Jetty during the night of September 3. One man was washed overboard and lost from a snapper boat near Galveston the same night.

In Puerto Rico and the Virgin Islands damage was comparatively light and confined primarily to crops. There were no reports of injury or loss of life. Torrential rains over Haiti caused floods on the flat lands with water 5 to 6 feet deep on the roads. The city of Aux Cayes was under water for the better part of a day. The floods resulted in heavy losses of cattle and washed out about a third of the crops, consisting mainly of bananas and sugar cane. Meteorological data for hurricane Ella are given in table 1.

HURRICANE HELENE

September 21 - October 3, 1958

Hurricane Helene developed in an easterly wave in the Atlantic trade wind belt north of the Virgin Islands on September 23, 1958. On the following day the storm had increased to hurricane intensity as it advanced along a slow and somewhat erratic course toward the coast of Georgia and the Carolinas.

By Friday morning, September 25, Helene had intensified to a point where she posed a severe threat and the Georgia and South Carolina coasts south of Charleston were placed under "Hurricane Watch". At 1100 E.S.T. hurricane emergency warnings were issued for the coastal areas between Savannah and Cape Fear. At this time the center of Helene was located about 260 miles east of Brunswick, Georgia, moving northwestward toward the coast at 14 m.p.h. Throughout the day the hurricane increased in intensity and despite high pressure over the eastern United States the center continued on a course toward the coast and full emergency measures, including evacuation, were put

NORTH ATLANTIC TROPICAL STORMS, SEPTEMBER 1958-Continued

into force.

During the night the storm gradually began a curve toward the north and hurricane warnings were extended northward to Cape Hatteras at 2200 E.S.T. on the 26th and to Manteo, North Carolina, on the following morning. Observations indicated that Helene reached her greatest intensity early Saturday when a low pressure of 933 millibars (27.55 inches) was reported. During the forenoon the hurricane turned toward the northeast, with the center passing about 18 miles southeast of Cape Fear and moving approximately northeastward at a speed of about 10 m.p.h. Hurricane force winds, accompanied by high tides and torrential rains, pounded the coastal area around Wilmington. The Weather Bureau Airport Station at Wilmington recorded a fastest mile of 88 from the north and a peak gust of 135 m.p.h. from the north-northeast at 1241 E.S.T. on September 27. Both of these speeds greatly exceeded all previous records at Wilmington. The lowest pressure at that station was 975 millibars (28.795 inches) recorded at 1319 E.S.T. and the total rainfall during passage of the hurricane was 8.29 inches. During this period a Navy reconnaissance plane reported a low surface pressure of 938 millibars (27.70 inches), and an observer at Cape Fear estimated winds at 125 m.p.h. with gusts to 150-160 m.p.h. Paralleling the coast the center moved east of Cape Lookout, passed Cape Hatteras just before midnight, and headed out into the Atlantic. At 1700 E.S.T. on the 28th hurricane Helene was located by reconnaissance aircraft and vessel reports near 38.3°N., 65.5°W., or about 320 statute miles southeast of Nantucket, Mass., moving toward the east-northeast at a forward speed of about 32 m.p.h. The highest winds were still estimated in excess of 100 m.p.h., and gales extended outward several hundred miles from the center. Helene weakened gradually as it moved over the open ocean but was still a dangerous storm as it crossed the main shipping lanes and passed along the coast of Nova Scotia. Winds were still of hurricane force as the storm moved across

Newfoundland. For several days more Helene maintained her identity as she moved eastward over the North Atlantic as an extratropical storm.

Wind velocities and wind damage associated with the passage of Helene indicate a more intense hurricane than Hazel of 1954, but the fact that this year's storm passed about 20 miles off the coast with the strongest winds offshore at a time of low tide militated against the heavy high water and wave damage associated with the 1954 hurricane. A careful swell count made at Wrightsville Beach on the morning of September 27 by a member of the staff of the Weather Bureau Office at Wilmington showed only 2-1/2 to 3 per minute. This figure is probably the lowest count ever recorded for the area and indicates a storm of exceptional intensity.

Damage was greatest along the North Carolina coastal area from the South Carolina line northward to the vicinity of Topsail Beach. North of Topsail damage tapered off gradually but was still of considerable degree and extent through the Morehead City-Beauford-Atlantic Beach area. Damage dropped sharply inland, with little structural damage reported more than 10 miles from the coast. Crop damage, particularly to corn, was observed as much as 40 miles inland. Total property and crop damage has been estimated at \$11 million. Damage to beach installations along the upper South Carolina coast was slight and was estimated at \$200 thousand.

Despite the destructive nature of Helene, not a single death has been reported as resulting directly from this hurricane. This fact indicates a spectacular record when the number of persons living in the affected area is considered. Reports indicate that such a record is only possible through complete cooperation of all agencies charged with preparation for the emergency and expert management after passage of the storm. Whole communities prepared for and, in some cases, carried out complete evacuation from such areas as Wrightsville Beach. Meteorological data for hurricane Helene are given in table 2.

U S DEPARTMENT OF COMMERCE, WEATHER BUREAU
North Atlantic Hurricane Tracking Chart

NORTH ATLANTIC TROPICAL STORMS
SEPTEMBER 1958

STORM

ELLA (H)
GERDA (H)
HELENE (H)
ILSA (H)

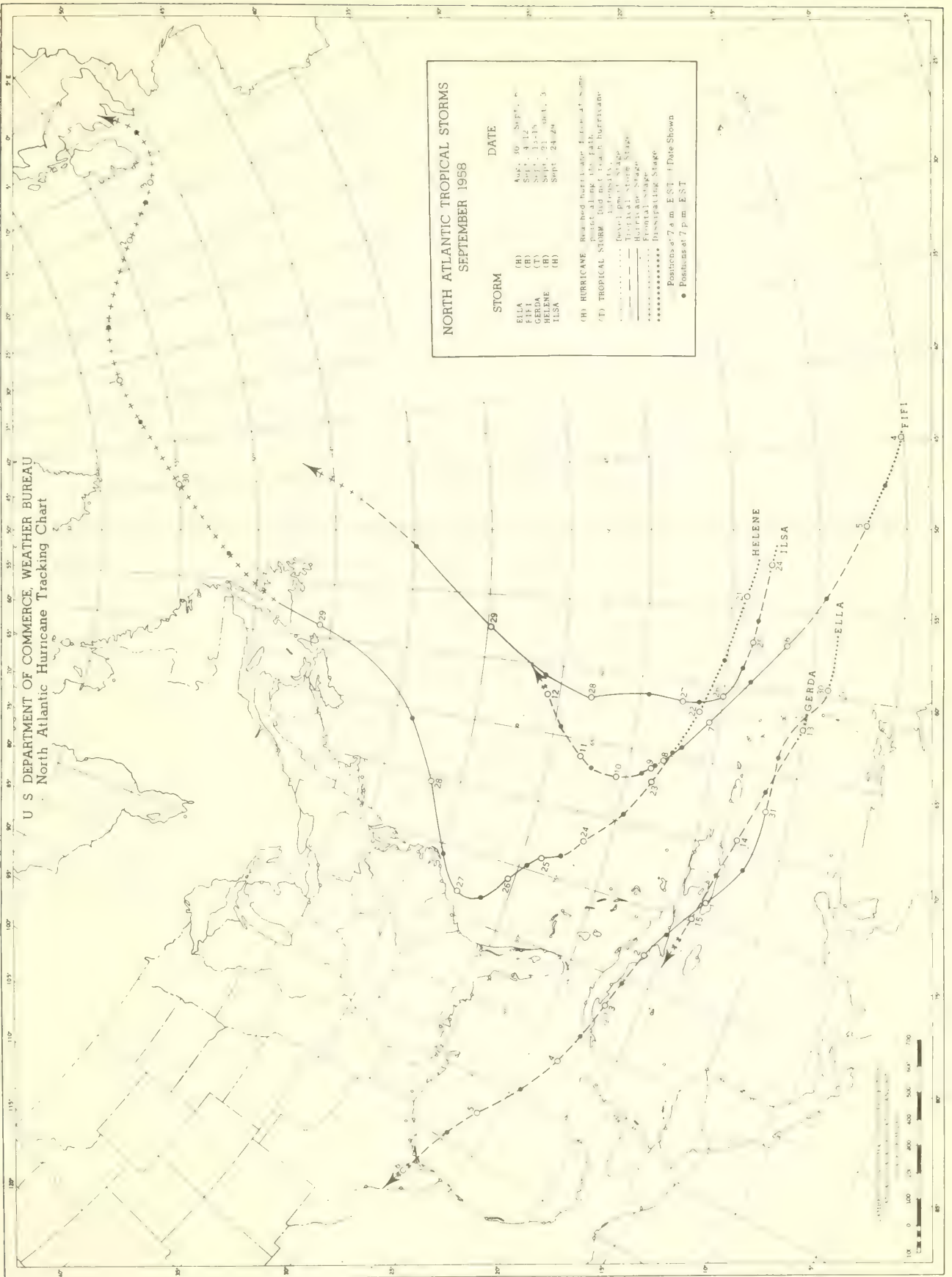
DATE

Aug. 30 Sept. 1
Sept. 12 Sept. 13
Sept. 14 Sept. 15
Sept. 21 Oct. 3
Sept. 24 24

(H) HURRICANE Reached hurricane force at some point along its path.
(T) TROPICAL STORM Did not reach hurricane force.

..... Dissipating Stage
..... Tropical Storm Stage
..... Hurricane Stage
..... Frontal Stage
..... Dissipating Stage

Positions at 7 a.m. EST - Date Shown
• Positions at 7 p.m. EST



TROPICAL STORM DATA

ELLA

AUGUST 30 - SEPTEMBER 6, 1958

Station	Date Sept	Pressure (inches)		Wind (miles per hour)				Rainfall (inches)	Remarks
		Low	Time*	Fastest mile	Time*	Gusts	Time*		
FLORIDA									
Miami	3	29.94				38	4:48a.	1.65	Highest tides 2.0 feet above mean low water
Key West	3			59 SE	5:58a.				
ALABAMA									
Mobile	3			30	1:19p.	42	1:19p.		
LOUISIANA									
Burwood	3	29.88							
Point au Fer	4	29.86							
Grand Isle	5	29.90				75	9:00a.		
Cameron	5	29.74							
TEXAS									
Sabine (USCG)	5	29.76	3:00p.			50 ENE	7:00p.	4.05	Highest tide 4.1 feet above mean low water
Galveston								13.60	Rainfall for a period of 3 1/2 days
Victoria (WBAS)	5	29.68	5:50p.	35	1:25p.†	36	1:09p.†	2.29	
Port Lavaca	5	29.70		54		63		5.04	
Port O'Connor (USCG)	5	29.68	4:30p.	38		43			Highest tide 3.9 feet above mean low water
Rockport	5	29.66	6:00p.	18 NNE	4:00p.	25 NNE	4:00p.	3.01	Highest tide 2.5 feet above mean low water
Port Aransas	5	29.65	5:30p.	41 NW	8:00a.	46 NW	8:00a.		Highest tide 3.2 feet above mean low water
Corpus Christi (WBAS)	5	29.65	12:30a.†	26 N	2:45p.	35 N	8:56p.	2.09	Highest tide 3.7 feet above mean low water at 9:00a. September 6.
Padre Island	5			28 ENE	2:00a.	40 ENE	2:00a.	5.10	Swells offshore 8 to 10 feet on September 5
Kingsville	5	29.59							

* Times for Florida are Eastern Standard
† September 6, 1958

Times for Alabama, Louisiana and Texas are Central Standard

TABLE 1

TROPICAL STORM DATA

HELENE

SEPTEMBER 21 - OCTOBER 3, 1958

Station	Date Sept	Pressure (inches)		Wind (miles per hour)				Rainfall (inches)	Remarks
		Low	Time*	Fastest mile	Time*	Gusts	Time*		
SOUTH CAROLINA									
Charleston	27	29.48	5:00a.	63 WNW†	5:01a.			0.52	High tide 1.6 feet above normal
Sullivans Island	27	29.35	4:20a.	60 WNW	5:00a.				
Georgetown	27	29.27	6:35a.	60	8:00a.			2.52	Highest tide 2.1 feet above normal
Murrells Inlet	27	29.27	6:25a.	18 NNE		40		0.34	High tide 3 to 4 feet above normal
Myrtle Beach	27	29.25		60 WNW	8:00a.				
NORTH CAROLINA									
Wilmington (WBAS)	27	28.795	1:19p.	88 N	1:01p.	135 ENE	12:41p.	8.29	High tide 5.1 feet above mean sea level†
Cherry Point	27	28.80	5:09p.			97 NNW	6:52p.	4.54	High tide 6.0 feet above mean sea level
New Bern	27	29.11	5:01p.	52 N	7:05p.	83 N	7:05p.	4.35	High tide 3.3 feet above mean sea level
Hatteras	27	28.73	9:23p.	69 NNE	9:55p.	106 N	10:42p.	4.85	High tide 7.5 feet above mean sea level‡
Fort Macon (USCG)	27	28.68				127			
Elizabeth City	27	29.51	9:00p.	35 NNE	10:00p.	52 NNE	10:00p.	0.58	
Rocky Mount	27	29.52	6:00p.	25 N	9:00p.	44 N	9:00p.	0.08	
Tarboro	27	29.47#	6:00p.	25 N	8:00p.	34 NNW	7:30p.	0.20	
Oriental	27	28.68	6:30p.			80 NNW(E)	8:00p.		
Frying Pan Shoals	27								
Lightship	27	28.18				127 SSE			
Cape Lookout	27	27.98#	5:30p.			144 SE(E)	1:30p.		

* All Times Eastern Standard

† Highest 1 minute maximum

As reported; calibration of barometer unknown

(E) Estimated

+ At Wrightsville Beach

‡ In Pamlico Sound

TABLE 2

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

SEPTEMBER 1958

Damaging floods occurred during September along the Rio Grande at Presidio, Tex., the Middle River in Iowa, and along the Republican in Kansas. The Rio Grande flood at Presidio was the worst since 1932. The flooding on the Middle River at Casey, Iowa, was approximately 3 feet greater than the flood of 1947. The crests on the Republican at Clay Center and Wakefield, Kans., were the second and third highest of record. There was considerable flash flooding from excessive rains in northeastern Texas.

EAST GULF OF MEXICO DRAINAGE

The flooding in the Upper Tombigbee between the 21st and 27th was due to frequent rains between the 12th and 22d. Precipitation was the heaviest on the 21st and 22d and averaged about 3 inches in the upper portion, with some stations reporting over 4 inches. The crest flattened out rapidly as it moved downstream. There were no serious overflows, and no damage has been reported.

Light flooding occurred on the Pearl River at Bogalusa, La., between the 24th and 27th from heavy rain between the 19th and 23d. Near bankfull stages occurred on the Leaf River below Hattiesburg, Miss., and on the Pascagoula at Merrill, Miss. Severe flooding occurred on Gordon's Creek in Hattiesburg, Miss., virtually paralyzing the business section. Three downtown blocks were temporarily under water and about 100 houses and several business locations were flooded.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The flooding on the Raccoon and Middle Rivers in Iowa between the 5th and 9th was due to extremely heavy rain on the 5th, especially in the headwaters of the Middle River and across the lower portions of the Middle Raccoon and South Raccoon watersheds. The rainfall occurred in an 8 hour period and measured in excess of 12 inches locally in Adair, Caso, and Guthrie Counties. The damage was heavy in the headwaters of the Middle River and was confined mostly to county bridges, roads, and roadbeds of the railroads. Crop damage was heavy in the lowlands. The greatest urban damage occurred in the town of Casey, Iowa, where two dwellings were destroyed and 13 other houses damaged. The flooding in Casey was reported approximately 3 feet greater than in the flood of 1947. Damage along the Raccoon River was not as extensive, but local damage to rural areas was heavy in the area of the heavy rainfall.

Missouri Basin.--The flooding on the Nishnabotna in Iowa and the Nemaha River at Falls City, Nebr., was due to heavy rains on the 3d. The amounts ranged to over 8 inches in the Nemaha Valley in southeastern Nebraska. Some unofficial amounts of over 11 inches were reported. The rainfall amounts were lighter over the Nishnabotna. The resultant damage was lighter than would normally be expected of floods of this magnitude, because of the devastation of the July flooding which was more severe.

Severe flooding occurred on the Republican River in Kansas, following heavy rain on the 4th and 5th. Flooding on the other streams was mostly light to locally moderate. The crests on the Republican at Clay Center and Wakefield, Kans., were the second and third highest stages of record. Near the mouth of the Republican River, the overflow at Junction City, Kans., was the first flood stage

to be recorded since 1951. Heavy rains, around 14 inches, fell at Agenda, Kans., in southeastern Republic County, with flood waters surging down Elk Creek into Clyde, Kans., and reaching depths of 1-1/2 to 5 feet in business establishments. Six houses were reported as destroyed, and minor to major damage was sustained by 300 other residences. Some damage resulted at Hollis, Kans., on Salt Creek in northern Cloud County, following 8-inch rains in the headwaters during the 48-hour period ending on the 5th.

The Grand and Charitan Rivers in Missouri exceeded bankfull stage by 0.5 foot on the 25th and 24th. No damage resulted.

Arkansas Basin.--The flooding on the Little Arkansas River at Sedgwick, Kans., on the 17th was due to rains (2 to 3 inches) from the 15th through the 17th. No damage was reported.

Red Basin.--Minor flooding occurred on the Sulphur River at Hagansport, La., on the 20th, due to rains on the 19th and 20th. Little or no damage resulted from the flooding, as the area flooded is used mostly for grazing.

Lower Mississippi Basin.--The flooding on the Tallahatchie, Sunflower, and Yazoo Rivers between the 22d and the end of the month was due to heavy rain from the 19th to the 21st. Twelve to 14 inches of rain was reported in the area from about Lake Providence, La., to Coffeerville, Miss. Serious agricultural flooding occurred in the Big Sunflower Basin, and moderate agricultural flooding along the lower Yazoo and Tallahatchie Rivers.

WEST GULF OF MEXICO DRAINAGE

Rains from the 20th to the 22d caused light to moderate lowland flooding along the Calcasieu in Louisiana and the Sabine in Texas between the 21st and the end of the month. Rainfall amounts ranged from 13.6 inches at Orange, Tex., to an estimated 18 inches in many other areas in Louisiana. No appreciable damages resulted from the flooding.

There was considerable flash flooding on Richland, Chambers, and Cedar Creeks and their tributaries in northeastern Texas from the excessive rains between the 16th and 23d. Rainfall ranged from 4 inches in the upper reaches to more than 19 inches in the lower Trinity and Neches Basins. The average rainfall for the Neches Basin during the period averaged more than 8 inches and for the Trinity Basin below Dallas about 6 inches. There was a sharp rise on the Trinity below Dallas and on the East Fork below Rockwall, Tex., reaching flood stage in less than 24 hours at Rosser, Tex. At Long Lake, Tex., the Trinity rose from 6 feet on the 19th to 33 feet on the 26th. Flooding occurred at Liberty, Tex., on the 22d and continued at the end of the month, with a crest of 25.5 feet (1.5 feet above flood stage) on the 25th. There was no appreciable damage along the main stem of the Trinity, but considerable damage, mainly to cotton crops, occurred in Ellis, Navarro, Henderson, and Kaufman Counties along Chambers, Richland, and Cedar Creeks. Waxahachie Creek, a tributary of Chambers Creek, flooded portions of the town of Waxahachie, causing the evacuation of at least 50 families and a few business houses. A railroad bridge was washed out causing the derailment of a passenger train at Forrester, Tex., near the headwaters of Chambers Creek.

Flash flooding occurred along the north and west prongs of the Medina River from heavy rains during the early morning of the 16th and the night of the

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

SEPTEMBER 1958

16th and 17th. Heavy rains occurred again over the same area during the night of the 18th and 19th and over the upper portions of the Guadalupe and Blanco watersheds. This rain caused some streams in the upper Medina to carry more water than they had for many years and closed all low water crossings on the main stream of the Medina above the dam for a short period. On the Guadalupe River, a rise of about 10 feet occurred in the Kerrville, Tex., area and, together with heavy rains farther downstream on the 20th, caused some slight flooding in the Gonzales area. Considerable flooding occurred along Olmos Creek in the north and northwest sections of San Antonio, Tex., from the 2-to-4-inch rains during the early morning hours of the 20th. This creek reached its highest level in 10 years. Damage was not heavy, although some cars were flooded in low sections. Rains of 5 to 7 inches in the Victoria, Tex., area on the night of the 21st to the 22d caused a sharp rise on the Guadalupe to slightly above flood stage at that point during the evening of the 22d.

Rains of 4 to 5 inches occurred over the upper Nueces and Frio watersheds in Texas on the 16th, causing sharp rises in both streams and closing low water crossings. The rise on the west prong of the Nueces was as high as the rise in June 1958. Additional rains (6.3 inches) in the middle Nueces on the 17th caused moderate flooding at Uvalde, Tex., and on Turkey Creek. Rains (4 to 5 inches) on the 19th caused the biggest rise in years on the West Fork of the Frio at Leahey, Tex. Moderate flooding resulted on the middle Frio River

and Seco Creek and minor flooding on the upper Nueces. Flood damage was confined largely to streets, highways, and fences.

The flooding on the Devils River at Bakers Crossing, Tex., on the 21st and 22d was due to rains (up to 6 inches) on the 20th and 21st. There were two separate rises, each flood lasting about 10 hours. No damage of consequence was reported from these two minor floods.

Heavy rains over the Rio Grande watershed from Elephant Butte Dam in New Mexico to a short distance south of El Paso, Tex., on the 11th, 12th, and 13th caused a marked increase in the flow of the Rio Grande. There was some overflow at Presidio, Tex., on the 13th, but little damage resulted. More serious flooding developed at Presidio, Tex., on the 23d, due to heavy flow from the flooding Rio Conchos in Mexico. The Rio Grande exceeded flood stage by 11.3 feet on the 28th and continued above flood into October. This was the worst flood at Presidio since 1932.

Major damage was to the cotton crop which was practically a complete loss. There was also considerable damage to roads, railroad track, machinery, houses, farm lands, and levees. Radford, Tex., a small town 17 miles southeast of Presidio, was also flooded, but no information is available as to damage. The area around Ojinaga, across the river from Presidio, suffered great loss, both to farm lands and adobe homes. The flooding at Del Rio on the 28th and at Eagle Pass, Tex., on the 29th and 30th was comparatively minor, and no damage was reported in this reach of the Rio Grande.

FLOOD STAGE DATA

(All dates in September unless otherwise specified)

SEPTEMBER 1958

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
EAST GULF OF MEXICO DRAINAGE					
	<u>Fl</u>			<u>Fl</u>	
Tombigbee: Fulton, Miss.	16	23	24	16.9	23
Tupelo, Miss.	21	21	22	24.0	21
Amory, Miss.	20	22	26	23.1	22
Pearl: Bogalusa, La.	15	24	27	15.6	26
MISSISSIPPI SYSTEM					
<u>Upper Mississippi Basin</u>					
Raccoon: Redfield, Iowa	10	5	7	25.0	6
Van Meter, Iowa	13	6	7	17.8	6
Middle: Indianola, Iowa	15	7	9	19.2	9
<u>Missouri Basin</u>					
Nishnabotna: Red Oak, Iowa	15	7	8	18.5	7
Hamburg, Iowa	18	6	8	21.7	6
Nemaha: Falls City, Nebr.	20	4	6	26.4	4
Republican: Scandia, Kans.	10	5	5	12.9	5
Concordia, Kans.	10	5	5	11.8	6
Clay Center, Kans.	15	5	8	23.2	6
Wakefield, Kans.	11	5	8	16.2	6
Milford, Kans.	14			19.4	5
Junction City, Kans.	10	6	7	12.7	7
Little Blue: Fairburg, Nebr.	10	6	7	11.45	6
Hanover, Kans.	14	7	8	16.0	7-8
Black Vermillion: Frankfort, Kans.	19	4	5	22.5	5
		10	11	20.5	11
Big Blue: Wilber, Nebr.	16	6	6	16.2	6
		5	9	16.4	8
Barnston, Nebr.	18	4	4	20.25	4
		6	7	22.5	5
Marysville, Kans.	35	6	7	35.25	5
Blue Rapids, Kans.	20	5	5	25.6	5
				25.9	7
Randolph, Kans.	22	5	5	24.05	5
Grand: Sumner, Mo.	26	25	25	26.5	25
Charitan: Novinger, Mo.	20	24	24	20.6	24
<u>Arkansas Basin</u>					
Arkansas: Sedgwick, Kans.	18	17	17	19.9	17
<u>Red Basin</u>					
Sulphur: Hagansport, La.	38	20	20	39.9	20

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)					
Lower Mississippi Basin					
Tallahatchie: Swan Lake, Miss.	26	23	29	27.7	25
Sunflower: Sunflower, Miss.	25	22	30	27.3	26
Yazoo: Yazoo, Miss.	29	22	22	29.4	22
		26	1	30.1	Oct. 1
WEST GULF OF MEXICO DRAINAGE					
Calcasieu: Hineston, La.	12	21	27	16.4	23
Oakdale, La.	12	24	25	13.3	25
Kinder, La.	16	22	29	20.8	23
Old Town Bay, La.	4	22	Oct. 1	7.9	25
Sabine: Logansport, Tex.	25	22	22	27.0	22
Milam, Tex.	35	23	27	38.4	26
Bon Wier, Tex.	17	22	Oct. 4	19.4	24
DeWeyville, Tex.	14	22	1/	15.6	25
Trinity: Rosser, Tex.	26	20	21	29.8	20
Liberty, Tex.	24	22	1/	#25.5	25
Guadalupe: Gonzales, Tex.	20	22	23	21.3	22
Victoria, Tex.	21	22	23	21.5	22
Frio: Derby, Tex.	6	21	24	11.3	22
Tilden, Tex.	12	25	30	20.6	26
Calliham, Tex.	12	24	24	15.4	24
		26	1/	23.4	27
Nueces: Uvalde, Tex.	11	17	17	14.4	17
Cotulla, Tex.	15	21	28	17.1	22
				16.0	26
Tilden, Tex.	11	24	1/	19.4	Oct. 3
Devils: Bakers Crossing, Tex.	12	21	21	14.0	21
		21	22	14.6	22
Rio Grande: Presidio, Tex.*	10	23	1/	21.3	28
Del Rio, Tex.	15	28	28	16.7	28
Eagle Pass, Tex.	16	29	30	20.1	29

* Provisional
Highest stage observed
1/ Continued at end of month
E Estimated

Average monthly values

SEPTEMBER 1958

See reference note at end of table.

RAWINSONDE DATA

Average monthly values

SEPTEMBER 1958

CHARLESTON, S. C. (1016 MB.)										COLD BAY, ALASKA (1004 MB.)										COLUMBIA, MO. (989 MB.)										DAYTON, OHIO (983 MB.)										DENVER, COLO. (839 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity															
				Direction	Speed	Wind				Direction	Speed	Wind				Direction	Speed	Wind				Direction	Speed	Wind				Direction	Speed	Wind				Direction	Speed	Wind	Direction	Speed	Wind	Direction	Speed	Wind	Direction	Speed	Wind	Direction	Speed	Wind	
SURFACE	30	13	20.4	94	6	4.2	30	27	7.5	88	199	5.8	30	238	15.6	93	151	3.6	30	297	14.1	83	248	0.1	30	1,611	10.4	72	217	3.6	30	1,611	10.4	72	217	3.6													
1,000---	30	151	21.3	85	39	6.0	30	61			233	5.2	30	142					30	149					30	119																							
950---	30	594	21.1	76	17	4.8	30	479	5.6	82	255	7.9	30	584	18.4	70	207	7.3	30	582	16.0	75	233	3.6	30	554																							
900---	30	1,065	18.6	73	5	4.4	30	924	2.8	82	260	10.2	30	1,046	16.7	65	247	9.9	30	1,044	13.7	71	270	9.3	30	1,018																							
850---	30	1,554	15.6	75	318	4.8	30	1,385	4.4	79	263	11.4	30	1,831	14.5	61	264	10.2	30	1,524	11.7	64	277	12.6	30	1,501																							
800---	30	2,067	12.9	68	303	5.4	30	1,870	-1.9	72	248	12.4	30	2,042	11.9	56	257	10.1	30	2,030	9.7	55	275	13.6	30	2,013	15.3	44	234	4.4	30	2,013	15.3	44	234	4.4													
750---	30	2,604	10.2	62	295	6.8	30	2,379	-4.1	66	244	14.3	30	2,577	9.0	54	252	11.0	30	2,559	7.9	47	272	16.3	30	2,558	13.0	40	266	5.4	30	2,558	13.0	40	266	5.4													
700---	30	3,181	7.9	45	287	8.1	30	2,924	-6.8	59	242	15.1	30	3,150	6.7	46	262	11.0	30	3,132	5.2	43	273	19.6	30	3,135	9.3	41	267	6.4	30	3,135	9.3	41	267	6.4													
650---	30	3,787	5.2	37	288	7.3	30	3,494	-10.0	58	237	16.3	30	3,750	3.7	41	260	13.6	30	3,727	2.2	43	276	22.5	30	3,741	5.1	45	278	7.7	30	3,741	5.1	45	278	7.7													
600---	30	4,440	1.7	27	295	6.9	30	4,113	-13.7	55	229	18.2	30	4,402	-1.1	39	259	17.8	30	4,377	-1.2	44	273	23.1	30	4,394	-2.4	48	274	10.8	30	4,394	-2.4	48	274	10.8													
550---	30	5,129	-2.4	3	303	6.9	30	4,762	-18.0	51	232	19.4	30	5,085	-3.8	38	260	19.0	30	5,055	-5.2	39	273	25.4	30	5,079	-4.9	47	275	12.2	30	5,079	-4.9	47	275	12.2													
500---	30	5,887	-7.3	3	300	8.7	30	5,477	-22.5	47	231	20.7	30	5,840	-8.7	38	264	19.8	30	5,809	-9.4	38	275	27.9	30	5,830	-9.7	37	272	15.7	30	5,830	-9.7	37	272	15.7													
450---	30	6,691	-12.9	297	7.3	30	6,231	-27.5	46	236	20.2	30	6,640	-13.7	37	268	22.1	30	6,607	-14.7	37	276	30.3	30	6,632	-14.4	37	263	18.6	30	6,632	-14.4	37	263	18.6														
400---	30	7,590	-18.7	298	8.9	30	7,082	-33.6	45	232	22.1	30	7,535	-19.8	37	268	25.2	30	7,499	-20.8	37	278	31.0	30	7,521	-20.7	37	261	24.8	30	7,521	-20.7	37	261	24.8														
350---	30	8,572	-25.8	296	10.6	30	8,008	-39.6	45	214	20.0	30	8,512	-27.8	37	269	28.1	30	8,473	-27.8	37	278	33.2	30	8,495	-27.6	37	257	29.3	30	8,495	-27.6	37	257	29.3														
300---	30	9,671	-34.1	307	11.2	30	9,047	-46.5	45	218	25.0	30	9,605	-35.2	37	275	35.5	30	9,563	-36.1	37	278	37.3	30	9,586	-35.9	37	257	38.2	30	9,586	-35.9	37	257	38.2														
250---	30	10,922	-43.9	312	13.6	30	10,242	-51.6	45	212	35.3	30	10,850	-44.6	37	273	39.8	30	10,804	-45.8	37	282	40.8	30	10,829	-45.2	37	262	44.8	30	10,829	-45.2	37	262	44.8														
200---	30	12,384	-54.9	311	15.1	30	11,690	-61.3	45	211	35.3	30	12,311	-54.5	37	278	46.0	30	12,259	-54.9	37	282	45.8	30	12,287	-54.6	37	263	53.0	30	12,287	-54.6	37	263	53.0														
175---	30	13,228	-60.0	316	17.8	30	12,558	-61.4	45	212	35.3	30	13,157	-58.9	37	280	46.8	30	13,105	-59.1	37	287	43.9	30	13,137	-58.6	37	262	55.1	30	13,137	-58.6	37	262	55.1														
150---	30	14,179	-64.7	308	15.1	29	13,559	-80.8	45	212	35.3	30	14,116	-62.5	37	282	44.4	30	14,065	-62.3	37	287	40.0	30	14,094	-62.5	37	266	51.6	30	14,094	-62.5	37	266	51.6														
125---	30	15,283	-68.1	312	13.2	28	14,753	-81.5	45	212	35.3	30	15,230	-66.0	37	284	37.3	30	15,187	-64.2	37	281	33.2	30	15,211	-65.5	37	272	39.8	30	15,211	-65.5	37	272	39.8														
100---	30	16,619	-69.1	312	6.6	28	16,201	-81.4	45	212	35.3	30	16,579	-66.7	37	282	44.4	30	16,545	-64.5	37	275	23.8	30	16,562	-67.1	37	274	25.2	30	16,562	-67.1	37	274	25.2														
80---	30	17,966	-65.2	8	2.5	28	17,652	-81.5	45	212	35.3	30	17,939	-64.2	37	283	15.1	30	17,916	-62.5	37	279	16.5	30	17,917	-64.1	37	270	13.4	30	17,917	-64.1	37	270	13.4														
60---	30	20,619	-59.5	66	6.4	28	20,705	-81.7	45	212	35.3	30	20,619	-59.5	37	282	44.4	30	20,568	-58.9	37	279	16.5	30	20,517	-58.9	37	269	6.4	30	20,517	-58.9	37	269	6.4														
50---	30	22,326	-52.8	86	12.0	28	22,154	-81.6	45	212	35.3	30	22,326	-52.8	37	282	44.4	30	22,275	-52.2	37	279	16.5	30	22,224	-52.2	37	269	6.4	30	22,224	-52.2	37	269	6.4														
40---	30	24,129	-49.3	87	12.0	27	24,024	-80.9	45	212	35.3	30	24,129	-49.3	37	282	44.4	30	24,078	-48.8	37	279	16.5	30	24,027	-48.8	37	269	6.4	30	24,027	-48.8	37	269	6.4														
25---	30	24,398	-47.8	83	14.5	24	25,205	-80.7	45	212	35.3	30	24,398	-47.8	37	282	44.4	30	24,347	-47.5	37	279	16.5	30	24,296	-47.5	37	269	6.4	30	24,296	-47.5	37	269	6.4														
20---	30	26,878	-46.0	82	14.1	17	26,671	-79.7	45	212	35.3	30	26,878	-46.0	37	282	44.4	30	26,827	-46.0	37	279	16.5	30	26,776	-46.0	37	269	6.4	30	26,776	-46.0	37	269	6.4														
15---	30	28,818	-44.4	5		5	28,524	-49.8	45	212	35.3	30	28,818	-44.4	37	282	44.4	30	28,767	-44.4	37	279	16.5	30	28,716	-44.4	37	269	6.4	30	28,716	-44.4	37	269	6.4														

DODGE CITY, KANS. (95.7 MB.)										EL PASO, TEX. (881 MB.)										ELY, NEV. (811 MB.)										FAIRBANKS, ALASKA (992 MB.)										FLINT, MICH. (989 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity			Number of observations	Dynamic height	Temperature	Relative humidity															
				Direction	Speed	Wind				Direction	Speed	Wind				Direction	Speed	Wind				Direction	Speed	Wind				Direction	Speed	Wind				Direction	Speed	Wind	Direction	Speed	Wind	Direction	Speed	Wind	Direction	Speed	Wind	Direction	Speed	Wind	
SURFACE	30	792	15.7	83	177	4.2	30	1,197	19.6	73	23	3.6	30	1,908	6.0	61	185	8.1	30	1,335	3.7	92	25	1.7	30	234	12.3	88	224	2.1	30	234	12.3	88	224	2.1													
1,000---	30	1,221					30	87					30	1,477					30	69					30	1,411						30	1,411																
950---	30	565					30	533					30	579					30	484	4.6	74	73	.1	30	579	14.1	74	250	8.3	30	579	14.1	74	250	8.3													
900---	30	1,025	17.3	70	197	6.6	30	1,006					30	1,037					30	927	-2.4	72	233	4.0	30	1,030	11.9	69	271	12.2	30	1,030	11.9	69	271	12.2													
850---	30	1,514	17.3	61	243	9.9	30	1,503	19.3	65	91	2.9	30	1,515					30	1,387	-3.5	74	234	6.8	30	1,507	9.5	61	273	13.7	30	1,507	9.5	61	273	13.7													
800---	30	2,030	14.8	58	243	9.7	30	2,018	15.8	61	150	3.4	30	2,018	11.5	52																																	

Average monthly values

SEPTEMBER 1958

See reference note at end of table

RAWINSONDE DATA

Average monthly values

SEPTEMBER 1958

ST. PAUL IS., ALASKA (1006 MB.)										SALEM, OREG. (1010 MB.)										SALT LAKE CITY, UTAH (872 MB.)										SAN ANTONIO, TEX. (985 MB.)										SAN DIEGO, CALIF. (995 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																			
Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed																								
SURFACE	30	10	6.6	90	213	2.7	30	61	11.3	89	187	2.5	30	1,288	13.2	56	152	6.6	30	243	23.0	91	82	3.4	30	124	17.4	89	346	1.5																			
1,000--	30	59			394	3.1	30	141	12.6	82	209	1.5	30	1,282			152		30	113			82	3.4	30	81																							
950--	30	47.6	4.2	86	265	3.8	30	571	12.9	72	312	1.7	30	1,550			152		30	966	21.7	88	122	8.1	30	524	21.7	53	6	2.3																			
900--	30	41.7	1.5	85	254	4.6	30	1,028	11.9	63	298	3.4	30	1,511			158	7.7	30	1,530	19.6	85	143	9.3	30	994	22.8	31	350	3.4																			
850--	30	1,376	-	77	241	5.4	30	1,504	9.3	61	287	4.8	30	2,016	17.5	37	188	6.0	30	1,522	17.1	82	155	9.5	30	1,489	20.4	33	335	1.4																			
800--	30	2,365	-	74	266	5.3	30	2,005	6.9	58	267	8.1	30	2,016	15.2	35	238	6.0	30	2,039	14.9	76	156	8.1	30	2,009	16.8	37	187	1.5																			
750--	30	2,906	-	5.7	70	274	4.8	30	2,533	4.7	48	273	11.0	30	2,554	11.5	38	200	6.0	30	2,585	12.3	71	155	7.3	30	2,549	13.2	36	165	1.5																		
700--	30	2,906	-	8.5	65	282	6.0	30	3,094	2.2	43	275	12.8	30	3,132	7.3	43	266	9.1	30	3,160	9.5	63	160	6.8	30	3,133	9.6	35	170	3.5																		
650--	30	3,473	-11.5	61	284	6.2	30	3,684	-	1.0	40	275	15.1	30	3,733	3.4	46	263	12.4	30	3,777	6.5	56	177	4.8	30	3,736	5.8	36	210	2.3																		
600--	30	4,087	-15.1	52	283	5.4	30	4,324	-	4.7	44	277	19.6	30	4,383	-	1.0	457	13.9	30	4,426	-	3.0	54	163	2.5	30	4,396	1.8	242	2.5																		
550--	30	4,734	-19.3	47	287	5.8	30	5,000	-	8.6	42	273	25.1	30	5,065	-	5.6	43	258	16.3	30	5,120	-	1.1	56	190	1.5	30	5,081	-	2.5	252	4.8																
500--	30	5,441	-23.9	46	300	8.3	30	5,737	-	13.3	39	276	25.4	30	5,813	-	3.7	38	250	4.7	30	5,882	-	5.4	50	247	1.3	30	5,843	-	2.0	270	7.1																
450--	30	6,195	-28.9	43	296	0	30	6,526	-18.0	39	272	29.7	30	6,610	-16.2			261	25.5	30	6,695	-10.2	46	100	5	30	6,644	-13.1			274	9.5																	
400--	30	7,036	-34.8	46	312	3.4	30	7,404	-24.1	39	272	31.8	30	7,493	-23.2			261	21.4	30	7,602	-15.9	43	311	3	30	7,544	-19.8			266	12.4																	
350--	30	7,956	-41.1		269	12.4	30	8,364	-31.4	39	273	34.9	30	8,460	-29.1			261	27.7	30	8,594	-22.6	37	309	4.2	30	8,522	-26.9			259	13.9																	
300--	30	8,989	-47.8				30	9,437	-39.8		274	37.6	30	9,543	-37.6			263	31.8	30	9,707	-30.6	31	314	6.0	30	9,615	-35.2			253	18.4																	
250--	29	10,172	-52.1				30	10,658	-49.4		273	37.3	30	10,777	-46.4			259	37.3	30	10,976	-40.5		315	8.9	30	10,865	-43.4			243	29.5																	
200--	29	11,621	-50.8				30	12,094	-56.8		275	37.7	30	12,233	-54.1			257	46.8	29	12,460	-52.3		316	10.8	30	12,338	-52.5			239	38.2																	
175--	28	12,489	-50.4				30	12,937	-58.1		273	35.9	30	13,083	-57.1			255	47.7	29	13,313	-58.5		320	13.0	30	13,192	-57.5			237	39.2																	
150--	28	13,396	-50.1				30	13,905	-59.4		272	35.1	30	14,052	-60.2			253	46.8	29	14,268	-60.7		325	12.6	30	14,153	-61.1			237	34.7																	
125--	28	14,686	-50.5				30	15,048	-59.5		273	33.0	30	15,180	-63.0			258	39.2	27	15,368	-70.7		341	12.8	30	15,260	-68.8			241	27.2																	
100--	28	16,142	-50.7				30	16,444	-59.6		271	24.0	30	16,549	-64.1			264	25.8	19	16,687	-74.0		359	10.2	30	16,586	-70.8			255	14.3																	
80--	28	17,596	-51.0				30	17,845	-58.5		271	17.0	30	17,919	-62.5			269	15.3	13	18,008	-71.3		48	11.4	30	17,918	-67.0			347	13.0																	
60--	28	19,467	-51.5		244	18.8	29	19,662	-57.1		284	9.5	30	19,713	-59.0			288	5.8	13	19,740	-63.6		84	15.1	30	19,680	-61.2			94	6.8																	
50--	28	20,651	-51.6		237	18.0	29	20,819	-55.9		297	5.2	29	20,859	-57.3			274	3.6	12	20,872	-59.3		80	17.2	30	20,820	-58.3			92	10.4																	
40--	27	22,096	-51.7		245	19.4	29	22,242	-54.8		310	4.8	29	22,278	-55.1			289	2.9	12	22,285	-55.0		30	22,233	-55.6			92	11.8																			
30--	27	23,965	-51.2		246	23.7	26	24,082	-52.8		316	3.4	26	24,098	-53.1			270	4.6	11	24,135	-53.4		30	24,073	-53.6			94	13.9																			
25--	26	25,985	-50.5		250	25.5	18	25,279	-51.2		310	5.2	23	25,299	-51.5			279	3.6	8	25,326	-50.3		30	25,260	-50.9			87	14.1																			
20--	25	26,603	-49.7		255	24.0							12	26,732	-50.4									25	26,720	-49.5			82	12.4																			
15--	28	28,485	-48.7																					25	28,607	-47.3			80	14.5																			
10--	11	31,216	-46.6																					17	31,310	-42.7			89	14.1																			

SAN JUAN, P. R. (1013 MB.)										SANTA MARIA, CALIF. (1002 MB.)										SANTA MONICA, CALIF. (1006 MB.)										SAULT STE. MARIE, MICH. (989 MB.)										SEATTLE, WASH. (1001 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																			
Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed	Direction	Speed	Direction	Speed														
SURFACE	30	6	25.7	84	119	2.3	30	74	14.1	87	207	0.7	30	88	18.5	81	46	1.5	30	121	10.2	92	59	0.5	30	125	12.2	88	166	3.6																			
1,000--	30	123	25.5	80	109	5.8	30	95	14.8	83	302	7.7	30	35	18.8	78	48	1.5	30	226					30	135																							
950--	30	584	23.2	79	95	14.3	30	534	19.8	54	33	4.6	30	526	21.6	50	51	2.1	30	559	12.2	78	239	6.6	30	563	12.3	75	223	4.4																			
900--	30	1,045	20.5	78	97	13.6	30	1,002	21.1	36	47	4.6	30	998	22.4	30	339	7	30	1,008	10.4	73	260	12.6	30	1,019	10.3	73	245	6.2																			
850--	30	1,538	17.7	75	96	13.4	30	1,495	18.9	27	45	2.7	30	1,493	20.0	28	229	1.3	30	1,482	7.8	69	271	13.4	30	1,493	7.8	70	253	6.8																			
800--	30	2,055	15.0	68	96	13.2	30	2,013	16.2	25	214	1.1	30	2,012	16.5	31	218	3.6	30	1,981	5.6	63	268	15.3	30	1,992	5.2	64	262	8.5																			
750--	30	2,598	12.4	60	93	12.8	30	2,556	12.9	23	229	1.9	30	2,553	13.0	31	208	5.0	30	2,508	3.6	55	274	17.2	30	2,516	2.7	53	270	11.2																			
700--	30	3,177	-	50	93	11.6	30	3,133	9.3	26	262	2.7	30	3,134	9.5	31	208	3.6	30	3,065	5.4	54	272	20.7	30	3,073	-	2	49	270	15.1																		
650--	30	3,789	6.3	43	91	10.8	30	3,741	5.6		274	3.3	30	3,739	5.6		231	3.8	30	3,657	-	2.0	48	274	23.8	30	3,660	-	3.2	48	273	8.7																	
600--	30	4,442	2.8	36	72	9.9	30	4,393	1.5		248	4.2	30	4,395	1.5		231	4.4	30	4,291	-	5.4	43	274	27.5	30	4,294	-	6.8	43	269	21.1																	
550--	30	5,136	-	1.4	33	73	8.3	30	5,082	-	2.6	260	6.6	30	5,083	-	2.9	248	5.2	30	4,965	-	9.2	41	272	32.3	30	4,963	-	10.7	43	269	25.8																
500--	30	5,894	-	5.8	67	8.3	30	5,838	-	7.7	247	7.3	30	5,839	-	7.9	254	6.4	30	5,701	-14.0		39	274	35.5	30	5,697	-15.1	39	271	28.7																		
450--	30	6,705	-11.2		74	7.7	30	6,641	-13.6		254	8.7	30	6,643	-13.8		259	8.7	30	6,487	-19.5	38	274	37.8	30	6,484	-20.2	42	273	32.4																			
400--	30	7,607	-17.3		64	5.4	30	7,534	-20.6		250	9.7	30	7,535	-20.4		259	10.8	30	7,362	-25.0	38	275	42.7	30	7,352	-25.9	48	270	38.2																			
350--	30	8,594	-24.5		85	3.8	30	8,507	-28.1		265	8.9	30	8,510	-27.6		268	13.9	30	8,319	-31.7	34	275	47.9	30	8,305	-33.9	47	275	43.7																			
300--	30	9,698</																																															

See reference note at end of table

Average monthly values

SEPTEMBER 1958

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of 98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data. National Summary.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of 98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data. National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

SEPTEMBER 1958

Sun's zenith distance									
Date	A. M.					P. M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
Air mass									
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Sept. 1-----	0.92	1.01	1.14	1.29	1.45	1.27	1.12	-----	-----
2-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
3-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
14-----	-----	-----	1.12	1.29	-----	1.35	1.17	1.06	0.96
15-----	.97	1.07	1.18	1.32	1.47	-----	-----	-----	-----
16-----	1.04	1.14	1.25	1.37	1.52	1.37	1.21	-----	-----
17-----	.93	1.05	1.17	1.29	1.41	1.30	1.14	.98	.86
18-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
19-----	.83	.92	1.06	1.21	1.43	1.25	1.08	.92	.84
20-----	.98	1.08	1.18	1.29	1.47	1.29	1.17	1.04	.95
21-----	.98	1.07	1.20	1.23	1.45	-----	-----	-----	-----
22-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
23-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
24-----	.80	.91	1.10	1.25	-----	-----	-----	-----	-----
25-26-----	-----	-----	-----	-----	Cloudy	-----	-----	-----	-----
30-----	.75	.84	.96	-----	1.33	1.18	-----	-----	-----
Aver- ages	0.91	1.01	1.14	1.28	1.44	1.29	1.15	1.00	0.90
MADISON, WIS.									
Air mass									
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Sept. 1-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10-----	-----	0.96	1.07	1.14	-----	-----	-----	-----	-----
12-----	-----	-----	-----	-----	1.26	-----	-----	-----	-----
13-----	S 0.74	S .86	S .94	S 1.15	-----	-----	-----	-----	-----
20-----	I .43	I .56	I .64	M .91	-----	-----	-----	-----	-----
21-----	-----	-----	-----	-----	1.37	1.08	1.04	0.96	0.87
22-----	-----	S .87	S 1.01	S 1.23	-----	-----	-----	-----	-----
27-----	S .93	S 1.01	S 1.11	-----	-----	-----	-----	-----	-----
28-----	-----	.99	1.15	1.25	-----	-----	-----	-----	-----
Aver- ages	0.70	0.88	0.99	1.14	1.32	1.08	1.04	0.96	0.87
OMAHA, NEBR.									
Air mass									
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Sept. 1-----	-----	-----	-----	-----	1.16	1.05	0.78	-----	-----
2-----	-----	-----	-----	-----	1.16	-----	M 0.50	M 0.41	-----
7-----	S 0.71	S 0.82	-----	-----	S 1.25	S 1.05	S .81	S .77	-----
8-----	-----	-----	-----	S 0.93	M 1.10	-----	M .80	M .71	S .63
10-----	S .77	S .86	S 0.98	-----	-----	1.17	.95	.82	.71
11-----	-----	-----	-----	S 1.05	S 1.23	-----	-----	-----	-----
12-----	M .48	M .58	M .71	M .89	-----	M .97	M .80	M .68	M .58
15-----	-----	-----	-----	-----	1.10	.95	.84	.71	-----
17-----	-----	-----	-----	-----	M 1.25	S .97	S .90	S .77	-----
18-----	.72	.84	1.01	-----	M 1.24	M 1.14	M .94	M .80	M .69
21-----	-----	-----	-----	-----	1.26	-----	S .97	S .89	S .79
24-----	-----	-----	-----	-----	-----	-----	-----	I .13	-----
25-----	-----	-----	-----	-----	S 1.17	S .95	S .76	-----	-----
26-----	-----	-----	-----	-----	S 1.11	-----	-----	-----	-----
27-----	S .68	S .79	S .92	S 1.08	S 1.19	S 1.07	S .91	S .77	S .65
Aver- ages	0.67	0.78	0.91	0.99	1.19	1.08	0.88	0.77	0.61
GUAM, M. I.									
Air mass									
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Sept. 17-----	M 0.87	M 0.91	M 1.04	M 1.18	-----	-----	-----	-----	-----

Sun's zenith distance									
Date	A. M.					P. M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
BLUE HILL, MASS.									
Air mass									
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Sept. 2-----	-----	-----	-----	1.21	1.40	1.23	1.05	0.93	0.82
3-----	1.03	1.08	1.14	1.22	K 1.34	K 1.10	K .85	-----	-----
8-----	K .74	K .85	K .99	-----	-----	-----	-----	-----	-----
9-----	.96	1.04	1.16	1.30	1.41	1.22	-----	-----	-----
11-----	.93	1.00	1.08	1.22	-----	-----	-----	-----	-----
12-----	.96	1.05	1.16	1.26	-----	-----	-----	-----	-----
13-----	.84	.92	1.10	1.26	1.32	-----	-----	-----	-----
16-----	K .74	K .83	K .95	-----	-----	-----	-----	-----	-----
23-----	.96	1.04	1.16	1.27	1.34	1.20	1.02	.86	.74
24-----	.89	1.00	1.12	1.27	-----	-----	-----	-----	-----
25-----	-----	-----	-----	-----	H .90	H .69	H .53	H .43	.86
29-----	1.00	1.10	1.20	1.33	1.40	1.28	1.13	-----	-----
Aver- ages	0.90	0.99	1.11	1.26	1.37	1.15	0.95	0.82	0.71
WASHINGTON, D. C. (WBCO)									
Air mass									
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
Sept. 2-----	-----	-----	-----	1.19	-----	-----	-----	-----	-----
9-----	0.89	1.00	1.11	1.24	-----	-----	-----	-----	-----
11-----	-----	-----	1.12	1.23	-----	-----	-----	-----	-----
13-----	.67	.75	1.12	-----	-----	-----	-----	-----	-----
19-----	.70	.80	.94	1.11	-----	-----	-----	-----	-----
27-----	.67	.79	.93	1.09	-----	-----	-----	-----	-----
Aver- ages	0.74	0.84	1.04	1.17	-----	-----	-----	-----	-----
MAUNA LOA OBS., HAWAII									
Air mass									
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Sept. 3-----	1.23	1.31	1.39	1.50	-----	-----	-----	-----	-----
4-----	1.25	1.31	1.40	1.51	-----	-----	-----	-----	-----
5-----	1.23	1.31	1.40	1.50	-----	-----	-----	-----	-----
7-----	1.17	1.26	1.35	1.45	-----	-----	-----	-----	-----
9-----	1.19	1.26	1.36	-----	-----	-----	-----	-----	-----
11-----	1.23	1.31	1.40	1.50	1.63	1.49	1.37	1.28	1.19
12-----	1.24	1.32	1.41	1.53	1.65	1.52	1.41	1.31	1.24
13-----	1.26	1.34	1.43	1.54	1.63	1.50	1.39	1.30	1.23
14-----	1.25	1.32	1.41	1.53	1.63	1.49	1.38	1.30	1.22
15-----	1.25	1.34	1.43	1.53	-----	-----	-----	-----	-----
16-----	1.27	1.35	1.44	1.54	1.63	1.51	1.40	1.32	1.24
17-----	-----	-----	-----	1.55	-----	-----	-----	-----	-----
19-----	-----	-----	-----	1.62	-----	-----	-----	-----	-----
20-----	1.23	1.30	-----	1.49	1.60	1.50	1.39	1.29	1.23
21-----	1.23	1.31	1.40	1.52	-----	-----	-----	-----	-----
22-----	1.13	1.21	1.31	1.44	-----	-----	-----	1.22	1.16
23-----	1.17	1.25	1.35	1.47	1.63	1.49	1.39	1.30	1.22
24-----	1.29	1.36	1.45	1.56	1.65	1.56	1.45	1.35	1.27
25-----	1.28	1.36	1.45	1.57	1.65	1.54	1.42	1.33	1.25
26-----	1.28	1.36	1.45	1.55	1.62	1.47	1.38	1.30	1.23
27-----	1.27	1.35	1.44	1.55	-----	-----	-----	-----	-----
28-----	1.25	1.33	1.42	1.53	-----	-----	-----	-----	-----
29-----	1.21	1.29	1.39	1.50	-----	-----	-----	-----	-----
30-----	1.25	1.35	1.43	1.54	1.65	1.52	1.42	1.33	1.24
Aver- ages	1.23	1.31	1.41	1.52	1.63	1.51	1.40	1.30	1.23

* Values corresponding to true solar noon
H Haze
K Smoke
I Intense haze - indeterminate
M Moderate haze - indeterminate
S Slight haze - indeterminate

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station

listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

SEPTEMBER 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

								Avg																Avg								Avg
Date-----	3	4	5	6	7	8	9		10	11	12	13	14	15	16		17	18	19	20	21	22	23									
Langleys-----	407	356	219	298	151	213	438	297	83	267	448	436	351	434	237	322	35	79	46	142	173	336	479	184								
Date-----	24	25	26	27	28	29	30																									
Langleys-----	372	445	310	23	180	508	247	298																								

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg									Avg								Avg
Date-----	3	4	5	6	7	8	9		10	11	12	13	14	15	16		17	18	19	20	21	22	23		
Langleys-----	70	213	231	197	179	158	59	158	92	171	91	86	183	105	183	129	30	93	59	184	163	170	56		108
Date-----	24	25	26	27	28	29	30																		
Langleys-----	130	116	156	18	113	48	141	103																	

Note: Langley is the unit used to denote one gram calorie per square centimeter.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

SEPTEMBER 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	325	346	345	365	367	343	342	*258	324	365	220	*-10	326	326	321	*300	301	*117	329	252	*-27	320	270	191	284	301	*85	247	191	*67		260

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	---	---	335	---	---	---	---	285	---	---	269	282	261	266	207	---	---	236	212	---	---	224	---	149	---	---	218	157	---	---	---	---

Readings are omitted during precipitation periods.

The measurement is made with a Beckman and Whitley net exchange radiometer 6 feet above a plot of short grass. Temperature of the plate of the radiometer is estimated using air temperature measured in a standard shelter and empirically derived relationship between air temperature and plate temperature.

These data are of an experimental nature and are published as received from the University of Missouri at Columbia. The instrument with which they are measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's.

SEPTEMBER 1958

	Albuquerque, N. Mex.	Annette, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Grofflin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Itasca, N. Y.	Lake Charles, La.	Laramie, Wyo.				
1958																																						
Sept. 3-----	524	42	577	199	560	205	278	349	589	382	573	455	643	690	574	225	230	578	405	593	594	173	(601)	594	325	528	559	504	507	350	531	629	569	291	728	517	427	428
Sept. 4-----	514	143	561	528	481	203	342	168	494	383	411	543	633	558	388	489	441	409	549	537	470	310	488	595	282	620	547	573	314	428	588	---	513	733	239	180	460	
Sept. 5-----	514	40	612	443	518	152	263	536	372	452	295	141	572	699	543	401	212	530	582	571	541	236	(596)	614	175	460	535	585	473	449	588	---	489	606	430	160	457	
Sept. 6-----	497	126	445	523	490	150	167	548	372	448	359	393	---	680	206	555	461	269	572	546	472	310	562	549	150	226	493	622	535	481	547	599	512	---	---	476	241	
Sept. 7-----	---	453	466	482	524	151	181	555	219	409	186	443	---	537	182	(592)	308	581	518	231	490	240	392	410	292	247	315	75	685	543	389	546	533	573	---	---	151	
Sept. 8-----	624	205	480	182	594	113	168	533	304	291	180	270	---	640	268	579	417	578	196	515	522	509	460	471	258	286	489	608	526	340	499	546	575	562	---	---	311	
Sept. 9-----	615	461	623	242	609	---	94	474	577	473	565	207	---	630	517	485	298	379	354	561	489	237	524	564	195	485	528	515	318	468	514	612	567	502	695	488	530	
Average-----	548	210	538	371	545	162	213	452	411	405	381	350	---	633	384	(475)	338	475	454	508	511	291	(520)	540	233	414	461	585	460	415	510	584	531	488	691	373	305	
Sept. 10-----	485	450	620	331	596	---	92	371	119	469	111	---	---	645	66	527	333	105	261	563	415	372	418	---	---	523	490	650	443	490	543	527	701	297	517	547		
Sept. 11-----	529	174	---	470	194	---	155	504	357	493	364	517	---	466	169	521	451	469	448	494	376	464	225	570	259	572	467	516	490	596	487	349	224	409	708	438	531	
Sept. 12-----	340	282	205	224	47	---	104	503	561	410	490	403	---	327	490	87	513	562	247	525	583	438	394	597	179	324	(521)	417	420	203	201	162	53	530	715	560		
Sept. 13-----	320	250	192	332	470	---	146	316	526	221	500	529	---	443	387	495	524	575	390	548	543	507	425	616	153	558	532	663	507	299	474	478	322	535	696	528	317	
Sept. 14-----	647	428	328	(200)	549	102	106	454	433	430	422	385	---	636	498	467	519	501	151	545	306	512	629	604	136	404	512	645	220	616	363	587	475	526	686	508	355	
Sept. 15-----	630	65	564	363	316	107	306	275	500	517	480	249	---	643	345	442	428	338	469	537	589	268	654	601	240	451	506	487	274	---	477	327	357	135	666	500	512	
Sept. 16-----	648	115	566	261	463	128	241	419	306	471	287	214	---	484	219	329	---	22	183	514	208	343	530	591	307	205	496	622	498	612	472	496	475	238	679	113	358	
Average-----	514	252	413	(312)	377	---	164	406	400	430	379	383	---	521	311	410	461	367	307	532	431	415	468	596	213	434	(503)	571	407	488	413	424	350	414	693	420	401	
Sept. 17-----	618	186	594	422	468	90	128	498	43	410	28	375	---	593	388	499	---	365	459	488	607	40	616	387	290	521	478	662	309	594	443	461	438	104	654	85	205	
Sept. 18-----	546	182	526	181	410	47	252	483	115	498	159	280	---	494	173	503	97	553	473	523	575	521	448	575	246	237	487	692	436	473	371	418	377	440	665	52	201	
Sept. 19-----	603	331	570	---	523	215	178	482	70	400	101	412	---	518	440	492	323	448	428	513	551	482	605	572	180	93	407	459	327	581	479	494	494	219	644	136	229	
Sept. 20-----	612	161	529	---	350	54	300	480	224	507	261	235	---	603	461	468	374	147	483	513	519	372	592	571	74	401	470	604	354	574	445	327	369	128	641	250	387	
Sept. 21-----	608	318	---	---	42	106	165	490	221	495	198	408	---	227	455	295	209	430	255	508	141	229	494	561	98	350	456	497	420	582	355	184	114	217	629	60	158	
Sept. 22-----	275	95	238	---	488	89	197	473	397	421	296	481	449	325	48	329	501	402	290	434	506	214	509	212	112	420	604	459	539	310	521	407	521	637	532	261	519	
Sept. 23-----	527	133	488	353	362	81	195	435	503	266	487	569	673	594	444	363	477	193	432	482	382	435	531	95	113	367	331	228	228	258	54	443	318	410	457	530	---	403
Average-----	541	224	491	---	378	98	188	470	225	428	204	394	---	479	344	421	330	362	406	474	458	364	500	467	173	297	471	535	362	514	351	405	360	320	618	235	179	
Sept. 24-----	565	152	571	(120)	525	38	179	111	435	494	433	488	657	503	432	359	286	239	164	528	547	248	586	586	168	538	471	328	234	134	359	465	501	297	---	317	489	
Sept. 25-----	594	193	563	---	484	44	303	285	430	434	410	407	673	525	353	354	224	216	371	483	562	331	509	547	219	472	462	572	256	372	226	372	469	128	---	266	438	
Sept. 26-----	594	168	366	424	483	155	178	382	315	447	375	355	---	518	435	354	282	234	311	483	523	331	267	547	219	472	462	572	256	372	226	372	469	128	---	266	438	
Sept. 27-----	107	168	366	424	483	155	178	382	315	447	375	355	---	518	435	354	282	234	311	483	523	331	267	547	219	472	462	572	256	372	226	372	469	128	---	266	438	
Sept. 28-----	371	278	567	227	531	59	248	382	214	---	172	330	653	372	89	519	396	404	463	464	449	437	94	532	129	555	435	375	341	486	363	542	515	460	588	317	428	
Sept. 29-----	436	249	481	---	167	66	24	224	503	---	285	488	664	581	429	475	431	334	429	435	518	483	436	524	129	555	435	375	341	486	363	542	515	460	588	317	428	
Sept. 30-----	552	186	352	(425)	187	69	63	370	276	449	285	498	662	562	369	409	122	188	433	447	465	86	486	521	166	84	422	562	362	507	282	229	170	36	602	214	413	
Average-----	405	212	514	(299)	441	66	172	313	308	456	306	411	649	480	284	424	305	298	402	472	435	311	383	527	148	426	448	474	319	443	326	424	434	295	594	261	414	

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

SEPTEMBER 1958

	Lander, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Madison, Wis.	Manhattan, Kans.	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Portland, Me.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Seattle, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island	Washington, D. C. (Silver Hill Obs.)		
1958																																							
Sept. 3-----	436	606	624	---	413	463	477	---	567	177	378	297	620	579	585	455	261	593	---	521	596	505	537	458	607	---	---	350	449	201	---	---	589	365	476	465	489	510	440
Sept. 4-----	336	615	608	---	389	562	559	---	112	158	585	531	606	588	552	485	283	561	606	434	597	448	632	323	466	---	---	535	258	505	---	---	579	537	328	450	357	668	563
Sept. 5-----	488	494	565	---	410	652	595	---	138	280	564	420	592	577	356	386	276	533	594	440	597	448	632	323	466	---	---	272	402	506	---	---	332	533	408	564	628	706	503
Sept. 6-----	489	590	570	---	428	717	613	---	387	270	536	512	516	517	172	341	563	562	529	417	586	585	448	289	276	---	---	221	389	518	---	---	332	529	496	514	614	718	504
Sept. 7-----	489	550	451	---	406	541	484	---	493	284	462	348	393	266	427	303	579	286	538	126	583	581	500	571	373	---	---	136	110	505	---	---	290	524	276	558	632	715	404
Sept. 8-----	361	560	681	---	474	653	580	---	567	228	219	448	507	611	416	420	561	587	499	383	512	544	595	493	346	---	---	308	552	300	270	147	330	333	320	594	585	534	539
Sept. 9-----	363	550	657	---	457	656	616	---	483	192	522	391	370	612	569	584	379	608	345	348	580	324	623	483	414	---	---	501	130	447	369	360	385	---	---	515	623	687	567
Average-----	424	558	594	---	425	607	561	---	450	213	452	450	515	536	440	425	414	533	518	410	575	(487)	562	392	385	---	---	314	336	414	---	---	444	470	403	512	561	648	502
Sept. 10-----	455	590	123	---	208	654	615	620	365	142	360	394	548	455	113	225	582	492	408	205	547	(342)	629	518	371	425	476	290	314	295	248	376	345	482	497	514	520	475	
Sept. 11-----	396	568	633	---	60	626	605	546	544	103	333	618	414	210	433	593	549	374	256	373	392	345	626	541	439	607	541	352	412	337	221	476	434	477	372	565	482		
Sept. 12-----	128	573	657	---	420	597	595	569	533	---	291	559	469	487	521	514	547	238	467	503	114	526	613	487	341	647	416	418	335	345	258	155	572	436	359	458	490		
Sept. 13-----	483	604	637	---	433	609	606	561	537	131	284	178	408	---	521	533	516	388	596	408	572	353	606	390	435	644	346	349	353	197	271	267	546	281	553	378	542		
Sept. 14-----	485	600	618	---	447	626	629	566	45	271	506	558	363	567	450	497	99	561	402	518	570	361	623	97	498	625	230	326	177	145	548	328	528	600	623	589	541		
Sept. 15-----	365	578	349	---	293	614	606	201	360	327	504	548	482	289	502	472	544	383	135	505	476	324	622	524	481	612	321	407	---	---	300	455	313	537	572	617	389	538	
Sept. 16-----	480	579	309	---	256	616	591	436	56	329	230	485	457	338	449	441	156	399	---	60	436	505	612	200	190	608	357	75	---	---	116	409	382	348	571	598	591	447	
Average-----	399	584	475	---	302	620	607	500	348	217	338	477	449	391	427	468	428	405	378	367	444	(394)	619	394	394	595	384	317	318	248	376	345	482	497	514	520	475		
Sept. 17-----	354	569	164	---	352	602	579	106	555	318	480	583	611	125	50	41	534	251	584	52	459	475	603	281	203	609	291	66	423	201	(120)	451	145	586	600	683	---		
Sept. 18-----	416	552	262	606	418	566	568	460	537	233	473	541	547	545	103	223	542	536	511	83	295	353	608	452	246	597	516	66	179	139	98	375	187	488	562	882	---		
Sept. 19-----	473	552	359	268	34	592	558	497	134	60	277	564	325	434	146	209	---	475	109	180	542	520	577	377	259	584	292	155	393	337	95	376	288	591	584	706	319		
Sept. 20-----	435	551	82	225	70	643	554	550	262	147	482	413	413	66	235	22	190	119	238	590	418	259	587	126	388	598	362	109	274	231	107	391	19	538	590	643	185		
Sept. 21-----	472	546	167	600	279	610	567	538	525	---	467	563	551	130	246	52	535	121	364	364	123	517	573	490	217	591	160	60	367	321	356	207	35	501	589	652	70		
Sept. 22-----	444	525	294	467	356	501	461	552	410	---	74	521	237	512	423	490	452	485	368	159	503	511	516	457	304	245	485	440	317	239	207	236	524	389	194	638	463		
Sept. 23-----	380	371	514	191	326	232	121	331	120	67	475	481	467	469	495	486	98	510	271	449	490	462	110	400	452	445	320	390	282	292	391	189	512	207	506	678	495		
Average-----	429	524	263	393	262	535	487	433	363	165	390	524	450	326	243	217	392	370	349	268	404	442	511	369	296	524	347	169	319	251	(196)	318	232	460	518	669	310		
Sept. 24-----	231	560	512	550	---	666	503	129	484	252	375	571	454	203	444	327	418	495	471	445	405	376	592	173	407	591	65	392	87	37	467	343	326	406	439	667	335		
Sept. 25-----	443	569	407	521	368	693	569	368	299	---	443	364	500	447	435	430	493	460	449	524	509	490	601	456	385	593	220	294	199	241	348	439	313	559	587	645	470		
Sept. 26-----	442	546	440	525	404	696	534	467	337	52	474	577	254	462	407	356	419	265	566	289	500	397	380	434	269	579	287	354	368	303	410	409	199	552	557	648	414		
Sept. 27-----	435	298	399	581	449	665	506	519	506	220	456	580	140	328	41	35	515	269	375	41	164	488	469	318	320	560	337	341	396	387	160	431	51	497	540	652	171		
Sept. 28-----	218	507	418	486	483	602	486	526	340	47	426	231	351	472	483	479	469	429	154	453	411	91	533	291	446	476	64	428	323	238	540	425	483	431	430	448	472		
Sept. 29-----	371	514	184	522	29	564	491	246	412	73	436	309	179	63	271	163	421	125	---	343	146	397	508	341	325	479	95	212	315	284	268	410	219	503	554	643	211		
Average-----	368	502	420	531	380	638	514	400	390	154	428	444	262	360	328	321	460	387	451	280	381	388	540	329	365	550	205	291	293	262	397	410	274	490	487	646	369		

Note.--langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, September 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), September 1958.

A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), September 1958.

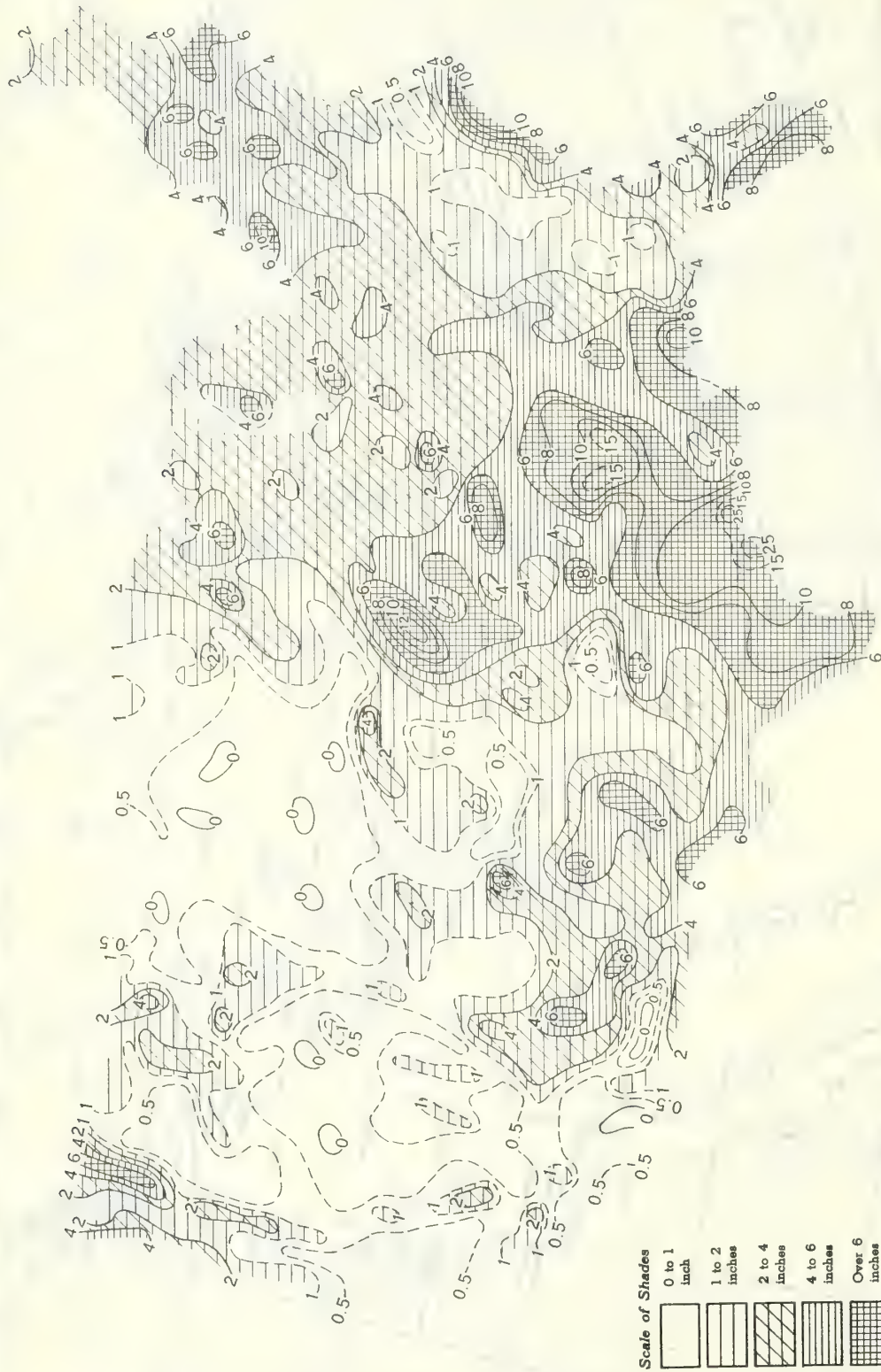
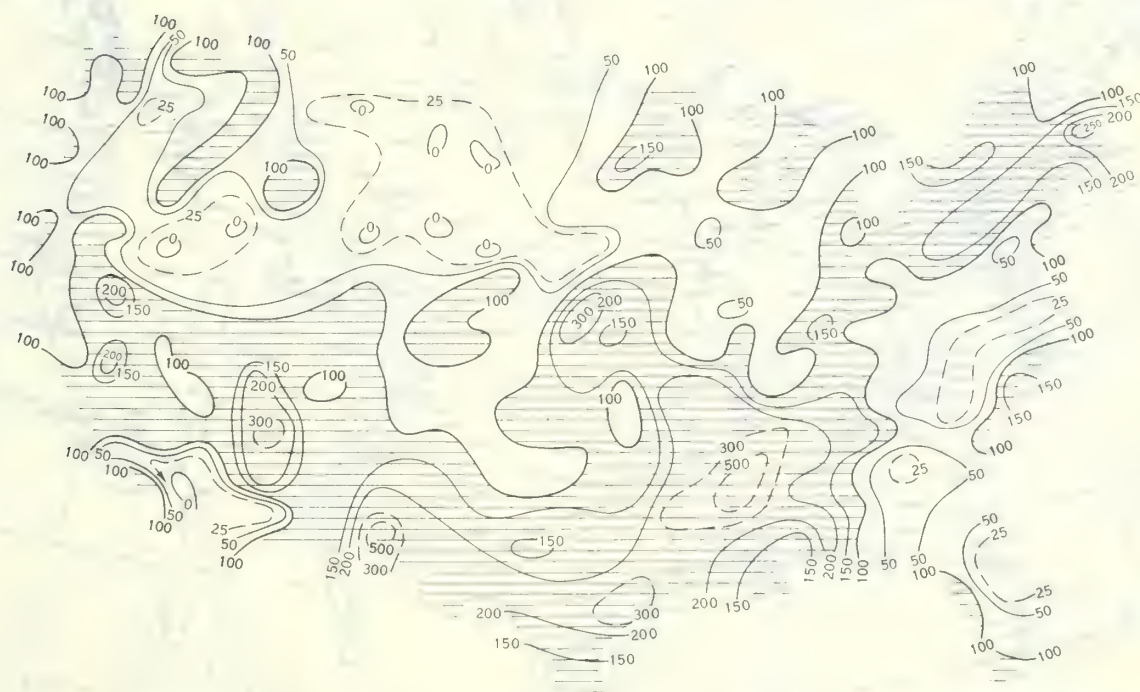


Chart III. A. Departure of Precipitation from Normal (Inches), September 1958.

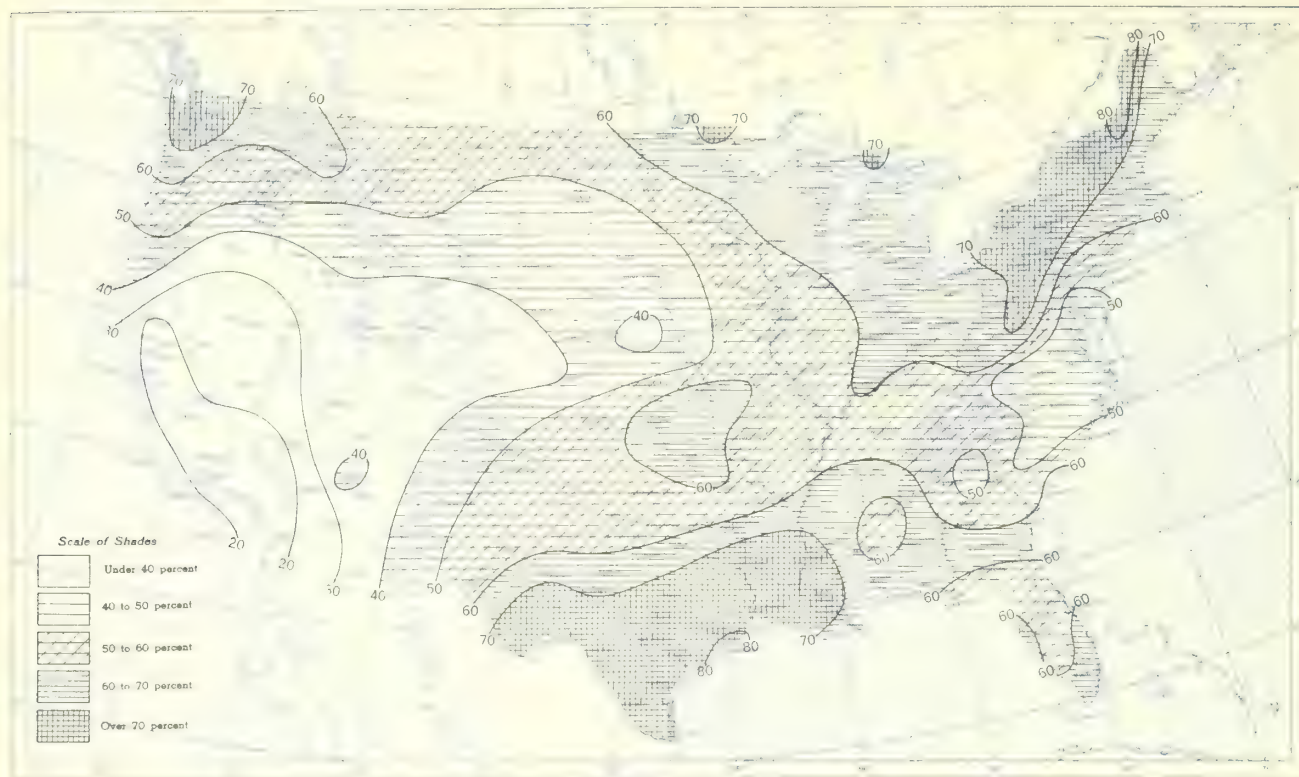


B. Percentage of Normal Precipitation, September 1958.



Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, September 1958.

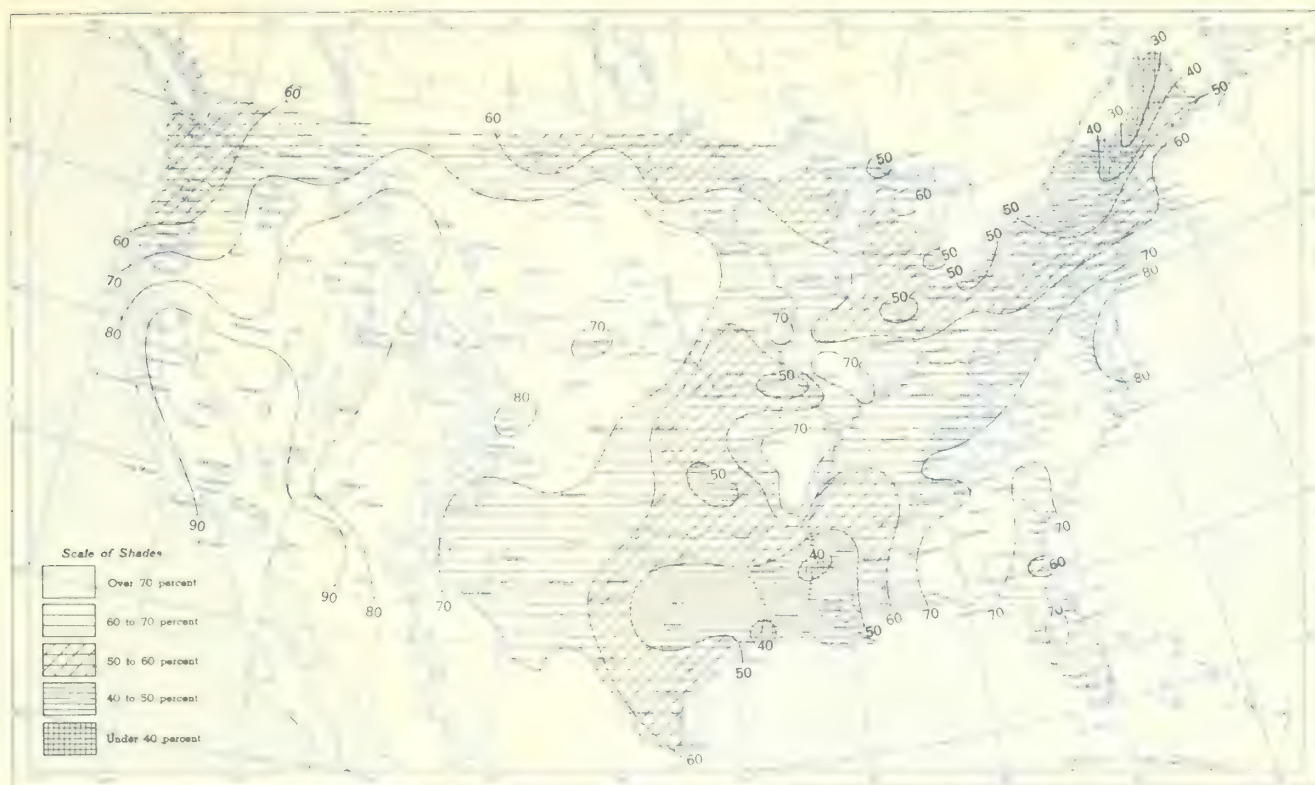


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, September 1958.

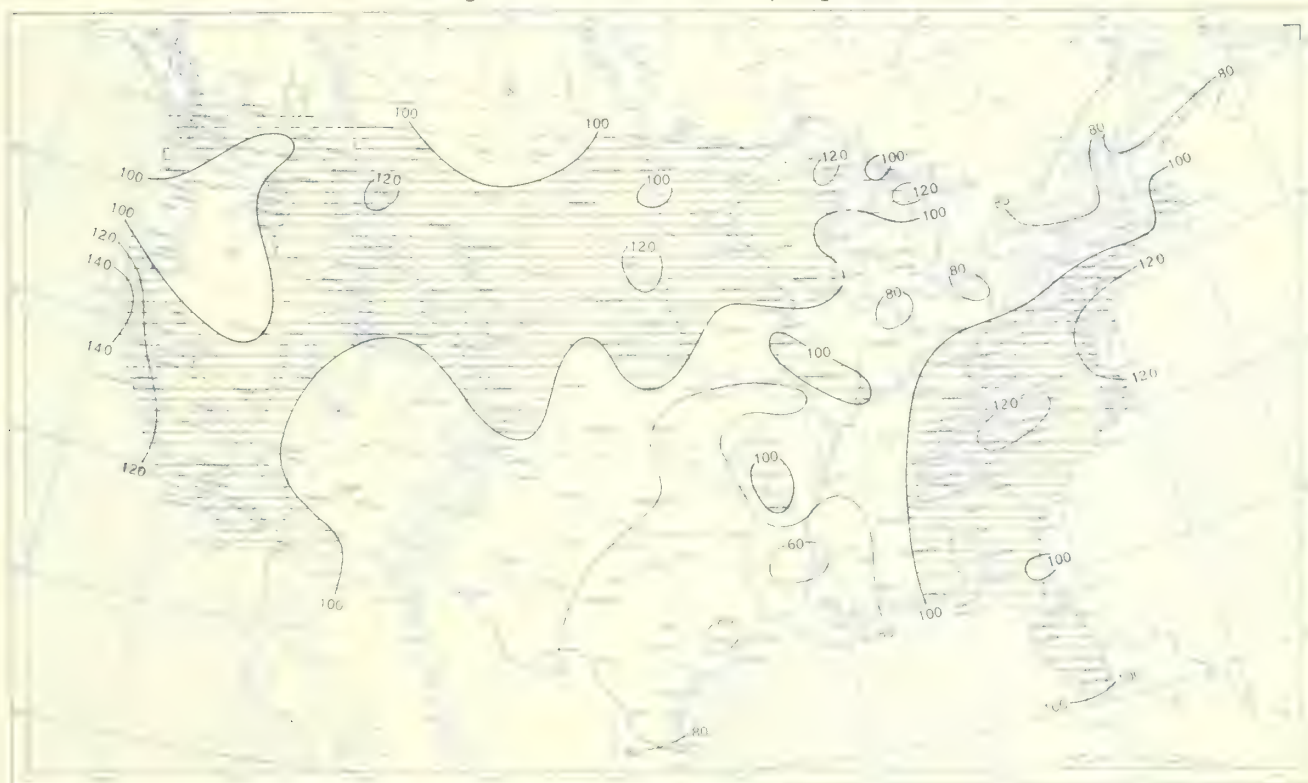


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, September 1958.



B. Percentage of Normal Sunshine, September 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, September 1958. Inset: Percentage of Mean Daily Solar Radiation, September 1958. (Mean based on period 1951-55.)

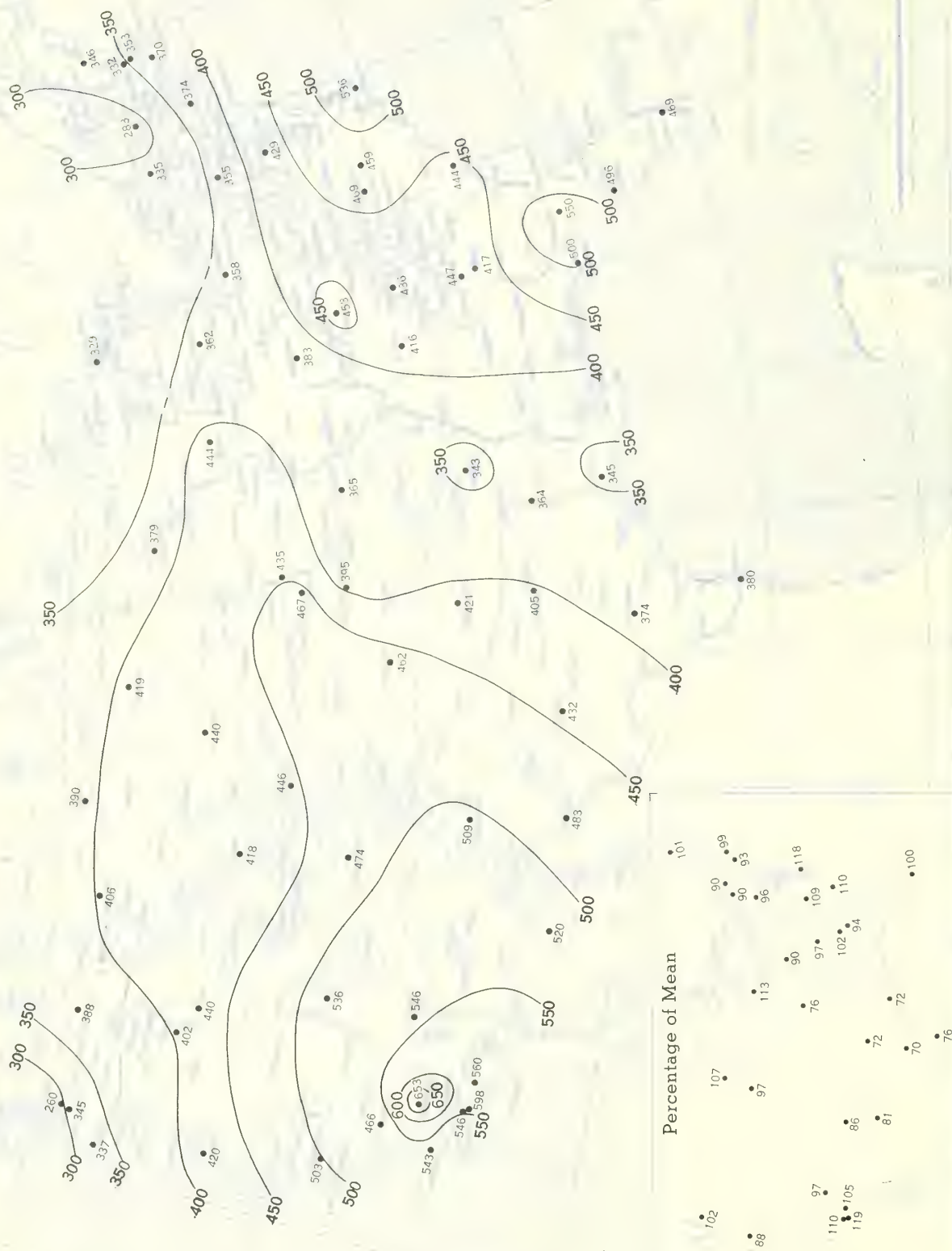


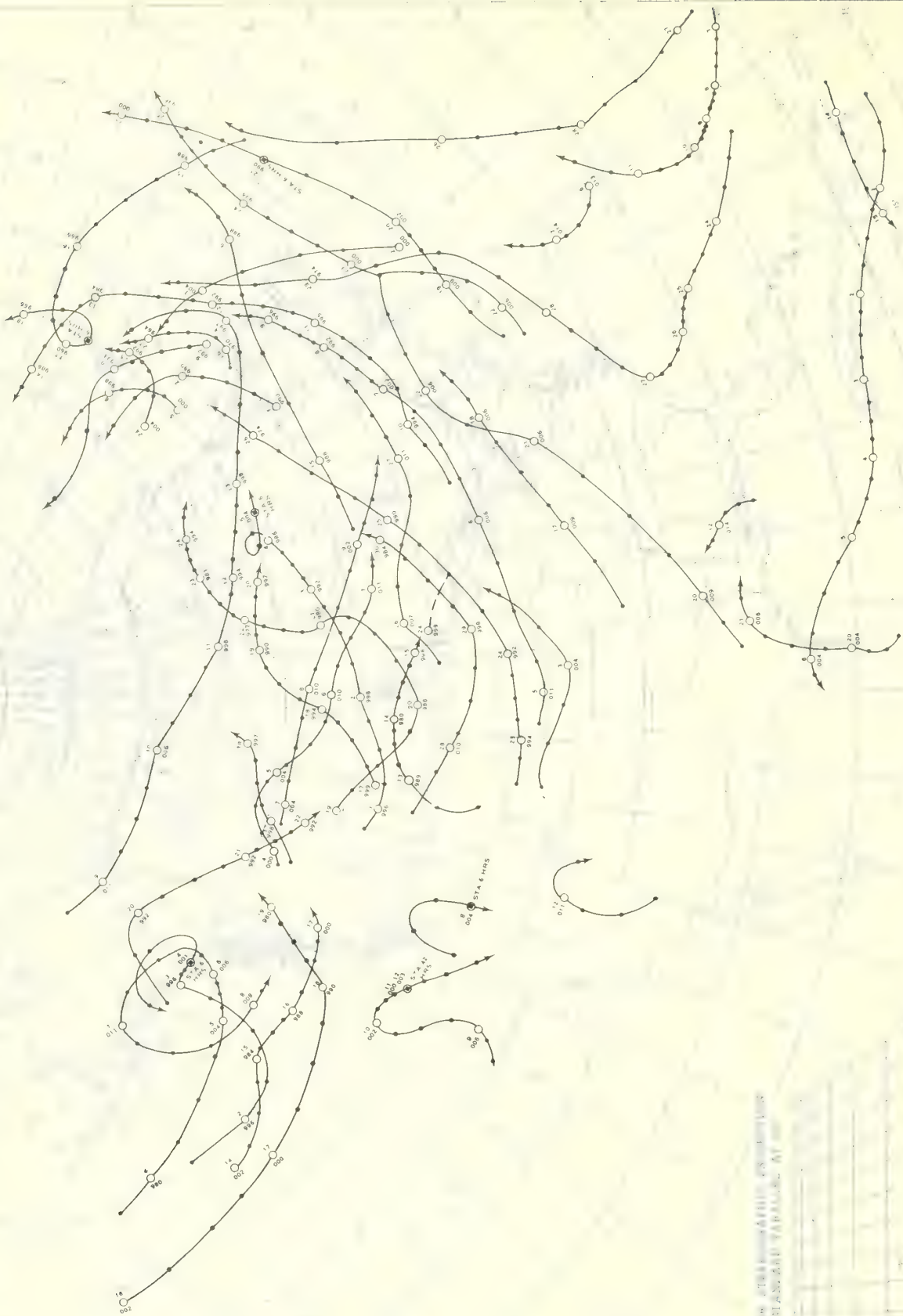
Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley (1 langley = 1 gm. cal. cm.). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. The inset shows the percentage of the mean based on the period 1951-55.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, September 1958.



Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar.
 Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, September 1958.



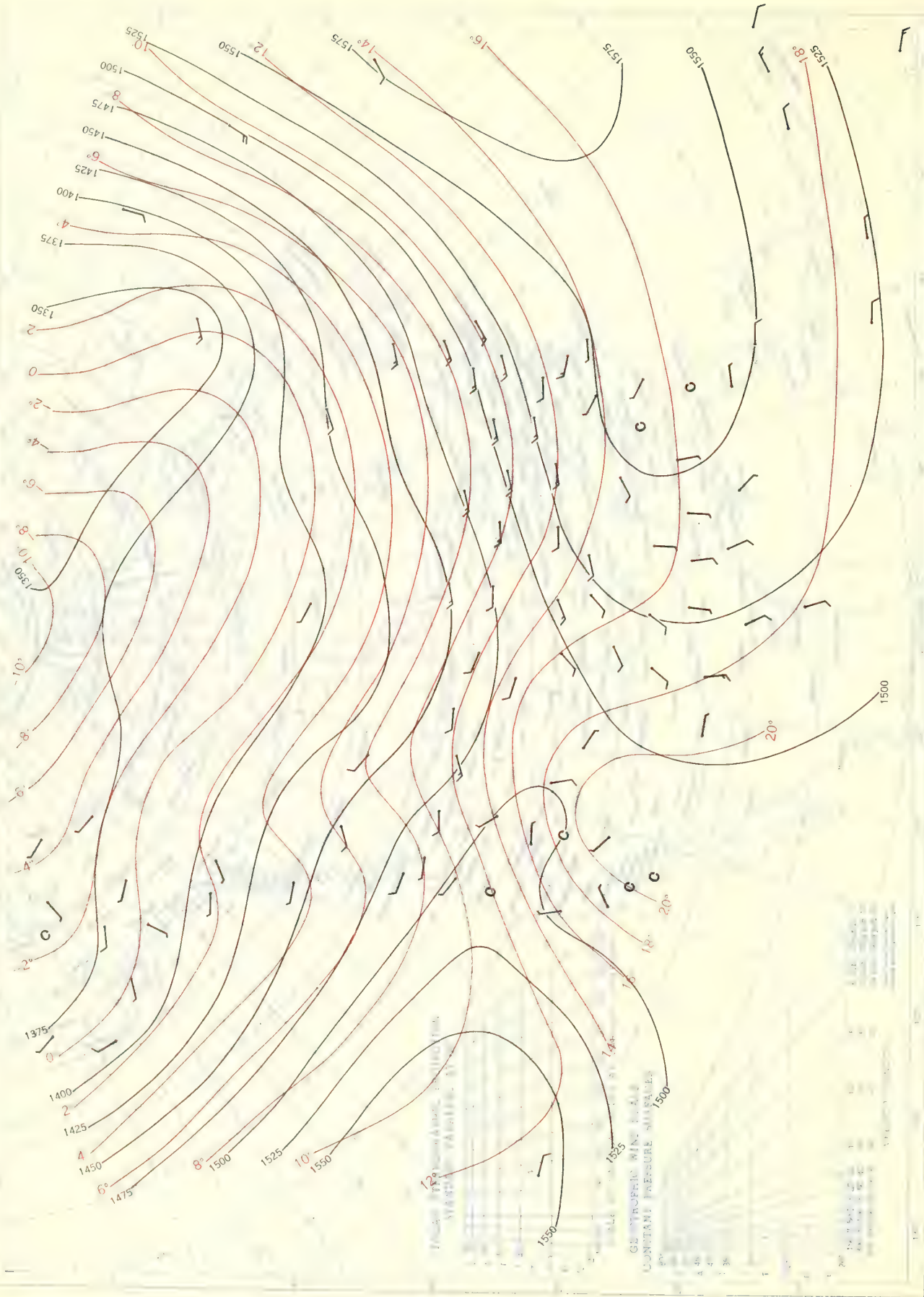
Circle indicates position of center at 7:00 a.m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, September 1958. Inset: Departure of Average Pressure (mb.) from Normal, September 1958.



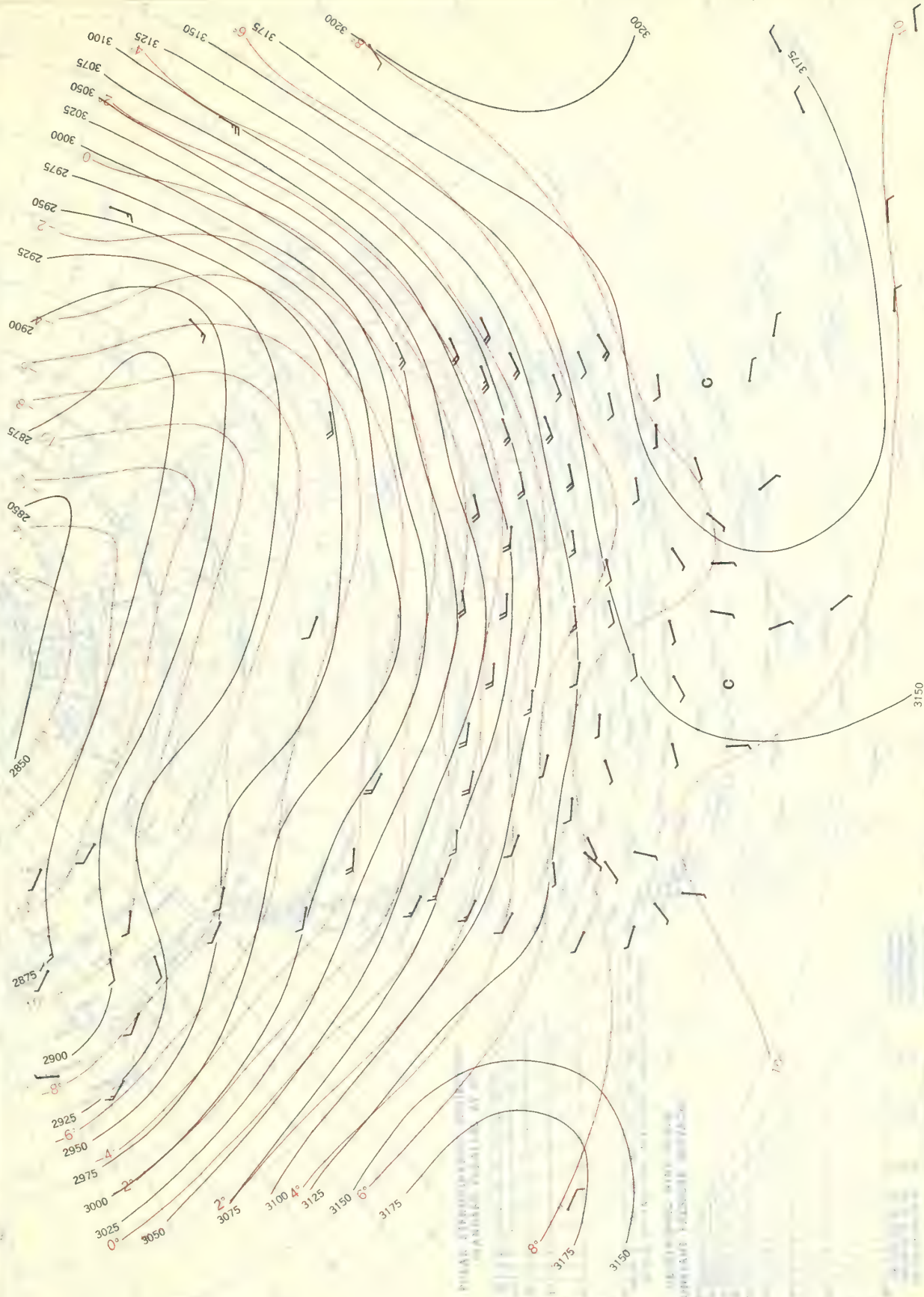
Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E.S.T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, September 1958. Average Height and Temperature, and Resultant Winds.

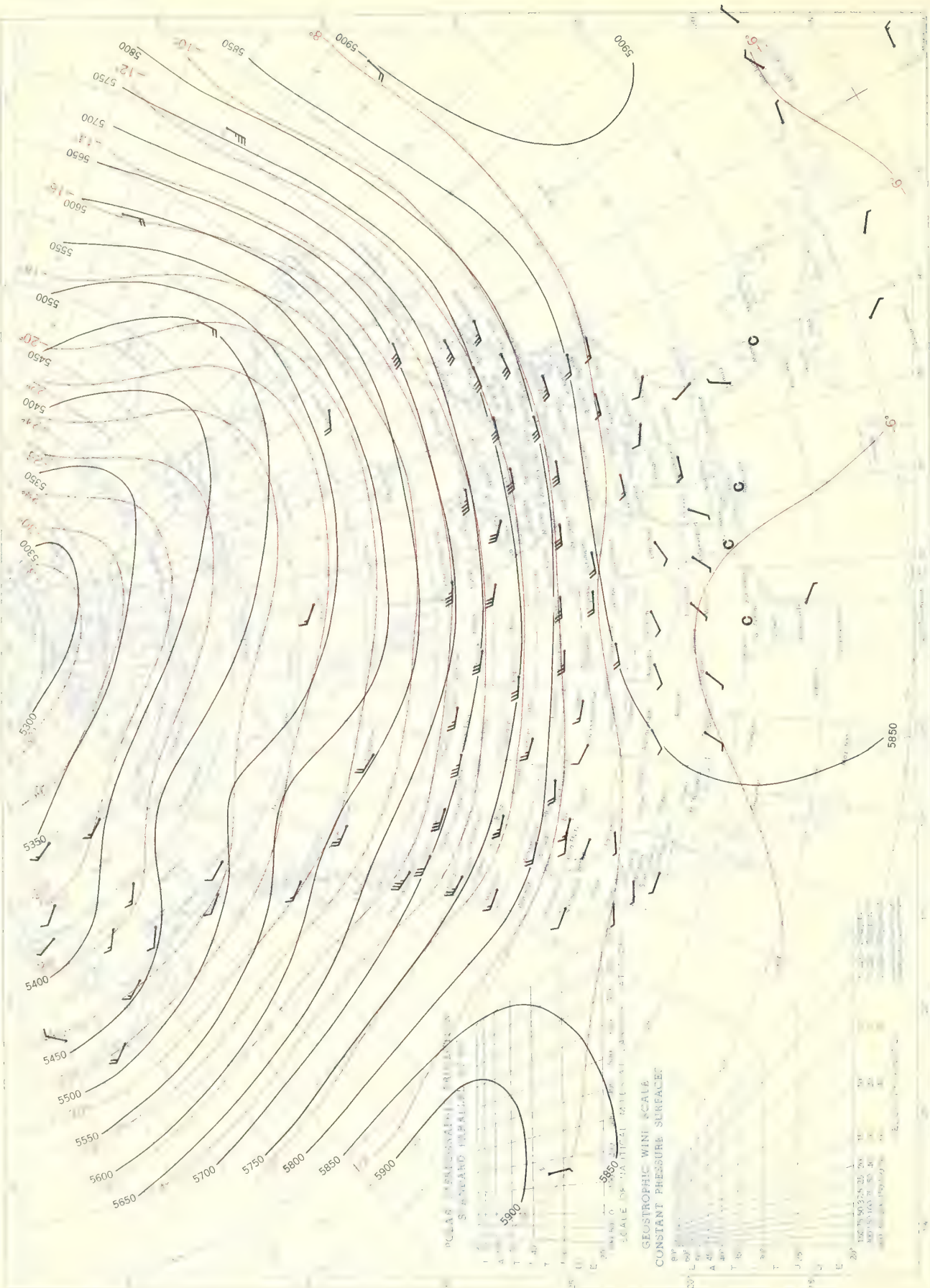


Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, September 1958. Average Height and Temperature, and Resultant Winds.

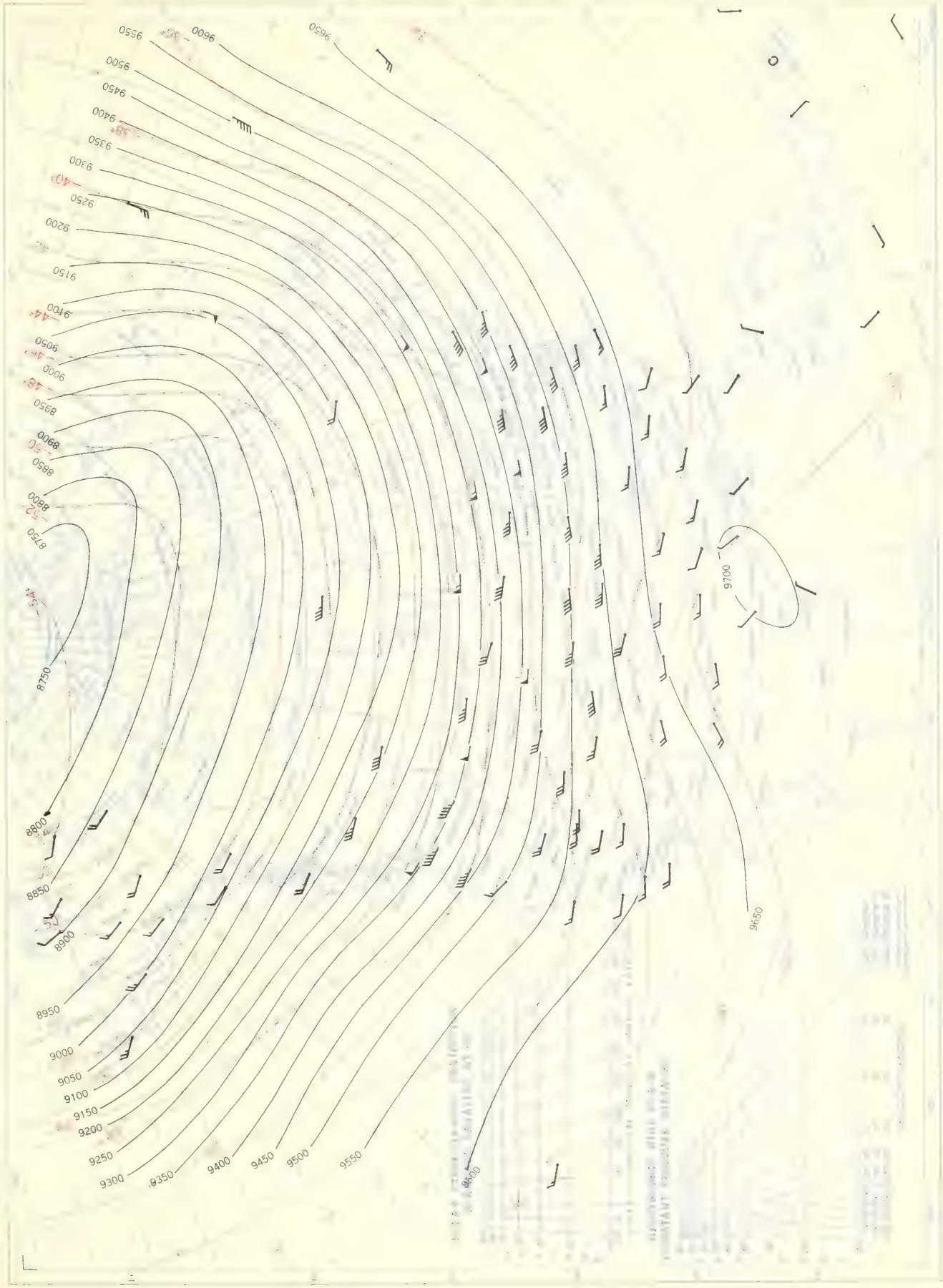


See Chart XII for explanation of map.



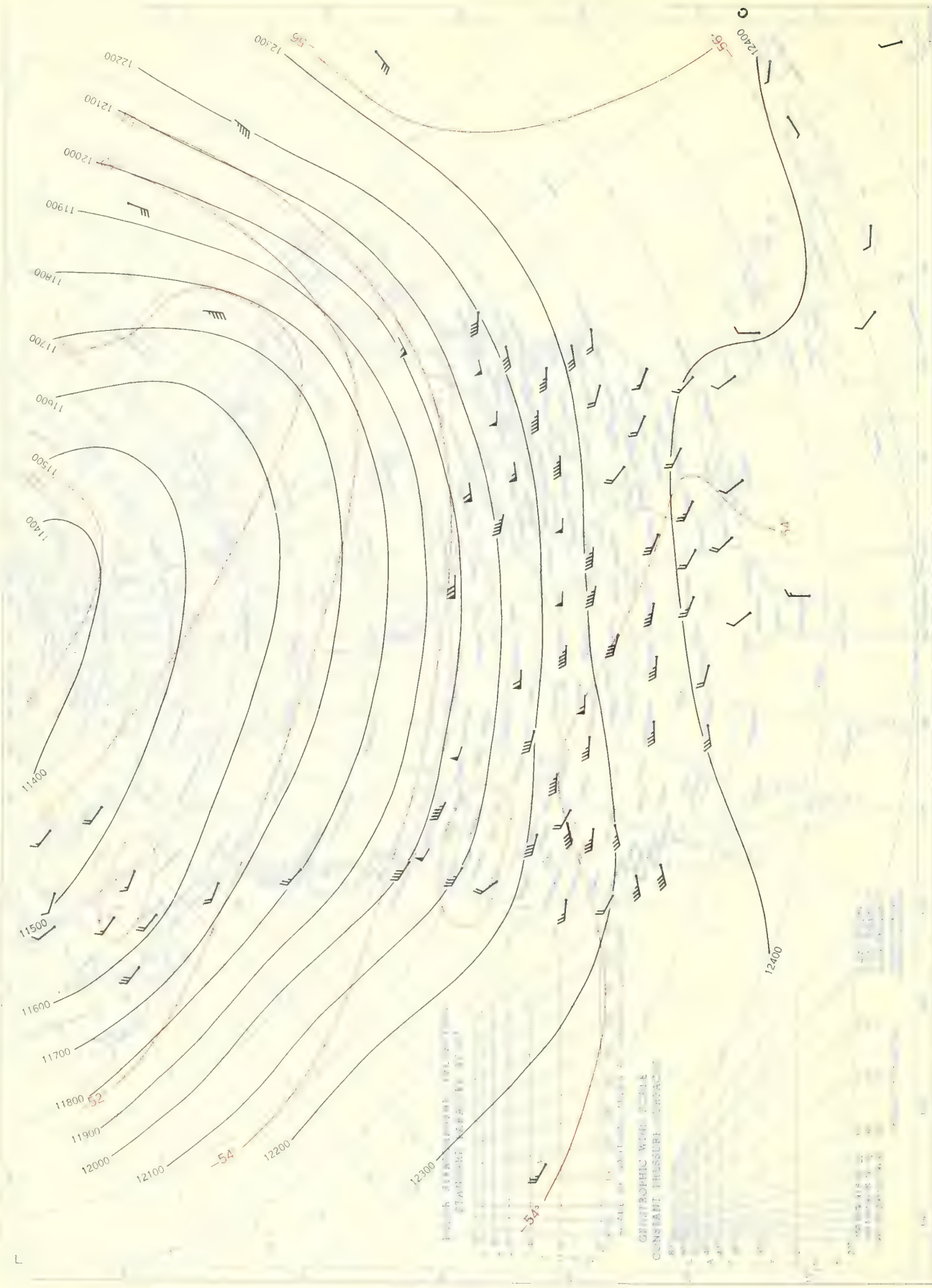
See Chart XII for explanation of map.

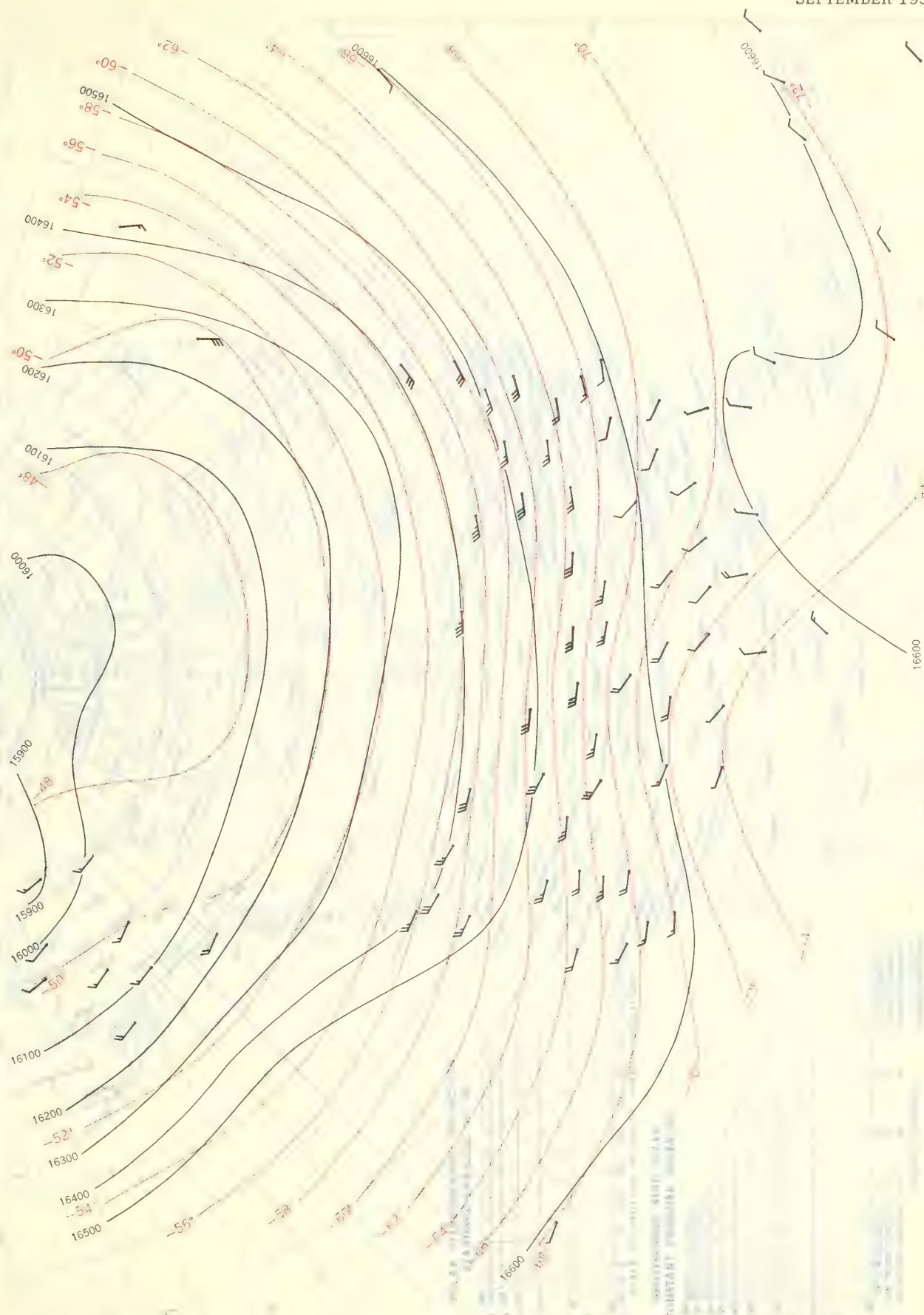
Chart XV. 300-mb. Surface, 1200 GMT, September 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, September 1958. Average Height and Temperature, and Resultant Winds.





See Chart XII for explanation of map.

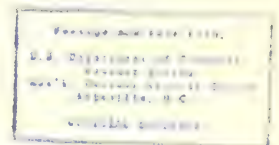
U. S. DEPARTMENT OF COMMERCE
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WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

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OCTOBER 1958
Volume 9 No. 10



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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 10

OCTOBER 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

October weather was mostly dry and sunny with about normal temperatures. The only noteworthy exceptions to this weather regime were well below normal temperatures, heavy rains, and floods in the Rio Grande Valley of Texas and record-breaking heat in southern California. No hurricanes entered the mainland and severe local storms were fewer than usual. The pleasant autumn weather conditions were nearly ideal for harvesting the Nation's bumper crops.

TEMPERATURE.--Temperatures for the month averaged above normal in the western portion of the country and below in the eastern, with the dividing line joining Buffalo, N. Y., and Tucson, Ariz. Unusual monthly averages were limited to the Southwest where average monthly departures ranged from -6° in the Rio Grande Valley of Texas to $+6^{\circ}$ in southern portions of California and Arizona. Several stations in California had their warmest October of record, among which were Los Angeles, 72.5° ; San Diego, 70.9° ; and San Francisco, 68.5° ; all with records dating back more than 80 years.

The warmest weather in most of the Nation occurred from about midmonth to the end of the third week. On the 17th San Diego, Calif., recorded 98° , its highest temperature for October on record, and on the 16th Los Angeles had 104° which equaled its October high. From the northern Great Plains to the Pacific coast highs in the 80's and 90's set new daily records at many stations. Sunshine in these areas was abundant, and it was the sunniest October of record at Sacramento, Calif., (99 percent of possible) and Lincoln, Nebr. (92 percent of possible).

Cool spells occurred early and late in the month. During the first spell which occurred east of the Rockies low temperatures ranged from the teens in extreme north-central areas to freezing at points in Oklahoma, Arkansas, and Kentucky. In many sections this freeze was about 2 to 3 weeks early. Record low temperatures for so early in the season occurred at a number of stations in the Northeast, including Erie, Pa., 32° and Buffalo, N. Y., 29° , both on the 6th.

The cold spell late in the month began in the Pacific Northwest, and Elko, Nev., recorded 8° on the 21st, its lowest October temperature on record. Extremes were not record-breaking east of the Rockies, but temperatures for the week ending November 3 averaged 12° below normal in the Rio Grande Valley.

PRECIPITATION.--Total precipitation for October was near to above normal along the Mexican and Canadian Borders, the Gulf and Atlantic coasts, and in the lower Ohio Valley, but less than 25 per-

cent in most of the interior.

Heaviest precipitation fell in Texas where monthly totals ranged up to 500 percent of normal. At Brownsville and Corpus Christi monthly totals of 17.12 and 8.43 inches, respectively, set new October records; and at Fort Worth on the 8th 3.95 inches set a new alltime record for an hour, and 4.86 inches a new October record for 24 hours.

Monthly totals along the east coast generally ranged from 2 to over 6 inches. At Boston, Mass., October precipitation boosted the total there for the year to date to 56.52 inches, the most for that period during 87 years of record. Precipitation along the Atlantic coast was mostly from coastal storms. One of these storms converged over the Northeast with a storm from the west during the week ending the 27th, producing up to 5 inches of rain in that area. This rainy period persisted for an unusually long period, and at Binghamton, N. Y., 8 consecutive days with measurable precipitation established a new October record.

The month was among the driest of record in interior regions of the country. Des Moines, Iowa, had its driest October with a total of only 0.07 inch, and Oklahoma City, Okla., received no monthly amount for the second time in 68 years, and Grand Island, Nebr., for the second time of record. The period May-October was the driest of record at Salt Lake City, Utah, where the total was only 0.87 inch, or 14 percent of normal.

DESTRUCTIVE STORMS.--Storm damage, less than usual for October, was caused mainly by thunderstorms and tornadoes in the middle and upper Mississippi Valley, and higher than normal tides from cyclonic disturbances along the Gulf and Atlantic coasts.

Twenty tornadoes, during October were responsible for 3 deaths, 35 injuries, and property losses estimated at well over \$600 thousand. Most of this damage was caused by two tornadoes in Florida, one at Pahokee on the 19th, and another at Palmetto on the 31st.

Some hailstones up to the amazing size of 6 to 8 inches in diameter were reported to have fallen north and northeast of Des Moines, Iowa, on the 8th.

Severe storms of wind, hail, and rain caused over a million dollars damage in the upper Mississippi Valley during the week ending the 13th.

An early winter storm, with high winds, snow, and glaze damaged power and communication lines during the third week. Heavy snows fell in the Big Horn Mountains of Montana and the Black Hills of South Dakota. One hunter lost his life in the storm.

CONDENSED CLIMATOLOGICAL SUMMARY

OCTOBER 1958

Section	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least	
		°F			°F			In.		In.	
Alabama	Andalusia	92	1	Aliceville	25	28	Jackson Shoals	6.28	Pine Hill	0.00	
Arizona	Dateland	111	4	Fort Valley	11	22	Granville	4.67	6 Stations	.00	
Arkansas	2 Stations	89	14+	Gravette	23	27	Big Fork	5.75	Hamburg	.05	
California	Long Beach	111	16	Boca	6	30	Smith River 3WNW	4.26	86 Stations	.00	
Colorado	2 Stations	92	14+	Fraser	-4	23	Vallecito Dam	2.02	3 Stations	.00	
Connecticut	5 Stations	82	11+	Coventry	17	14	Trap Falls Reservoir	8.69	Stafford Springs	3.43	
Delaware	2 Stations	87	10	Newark Univ. Farm	31	6	Wilmington City Hall	5.65	Milford	2.59	
Florida	do	97	3+	Milligan	36	28	New Smyrna Beach 4N	12.08	Milligan	.72	
Georgia	Dublin	95	10	Blairsville Exp. Sta.	21	29	Allatoona Dam 2	4.80	Sandersville	.00	
Idaho	2 Stations	91	16+	Cobalt Blackbird Mine	2	22	Bungalow RS	5.77	18 Stations	.00	
Illinois	Sparta	87	15	3 Stations	26	31+	Galena	3.88	Chester	.36	
Indiana	3 Stations	84	14+	4 Stations	25	31+	Oaklandon Geist Res.	3.22	Moore's Hill	.37	
Iowa	Inwood 2W	94	15	Le Mars 2N	16	31+	Maquoketa	3.61	9 Stations	.00	
Kansas	2 Stations	96	8+	2 Stations	21	31+	Hoyt 4SW	4.58	6 Stations	.00	
Kentucky	do	89	15+	do	23	31+	Dunmor	2.73	Beaver Dam	.26	
Louisiana	Donaldsonville	92	10	Chatham	32	28	Quarantine	6.72	Ashland 2S	.05	
Maine	Old Town CAA AP	82	10	Cupsuptic Storehouse	12	14	Rumford 3SW	6.97	Caribou WB Airport	2.63	
Maryland	Emmitsburg 2SE	89	10	Cumberland Police Brks.	23	6	Salisbury CAA Airport	4.68	Savage River Dam	.80	
Massachusetts	Frammingham	85	11	Birch Hill Dam	16	14	Cohasset	5.25	Coldbrook	1.82	
Michigan	3 Stations	82	20	2 Stations	19	29+	Rogers City	3.95	Eau Claire 4NE	.76	
Minnesota	Madison	93	15	Isabella 1W	16	5	Stillwater 2SSE	2.85	Worthington	.14	
Mississippi	Picayune 4S	92	10	Calhoun City	28	26	Forest	5.33	Wiggins	.27	
Missouri	Warsaw No. 1	89	8	2 Stations	23	29+	Princeton	5.22	4 Stations	.00	
Montana	3 Stations	90	19+	Dell 12SSW	-9	21	Colstrip	3.75	3 Stations	.00	
Nebraska	Butte	95	15	2 Stations	13	31+	Weeping Water	1.06	Numerous	.00	
Nevada	Pahrump	103	3	Rand Rch. Palisade	-2	21	Desert Game Range	1.03	27 Stations	.00	
New Hampshire	5 Stations	82	17+	Fabyan	10	14	York Pond	5.84	Otter Brook Dam	1.79	
New Jersey	2 Stations	87	10	Layton 3NW	21	7	Bass River St. Forest	9.01	Cape May 3W	2.49	
New Mexico	do	91	9+	Eagle Nest	-1	23	Carlsbad Caverns	4.99	Shiprock 1E	.08	
New York	3 Stations	85	16+	4 Stations	16	19+	Peekamoose	8.90	Buffalo WB Airport	1.40	
North Carolina	Mount Gilead 4W	91	10	Celo 2S	15	31	Manchester	10.36	Cataloochee	1.02	
North Dakota	Ashley	94	13	Hannah	10	11	Columbus	3.17	Belfield	.14	
Ohio	Milford	85	15	4 Stations	22	31+	Geneva 3SW	4.42	Coshocton Agri. Rsch. Sta.	.51	
Oklahoma	Waureka	99	9	2 Stations	23	31+	Broken Bow 1N	5.04	4 Stations	.00	
Oregon	Modoc Orchard	97	3+	Fremont	2	30	Astor Exp. Station	8.40	5 Stations	.00	
Pennsylvania	2 Stations	86	17	Coudersport 3NW	17	6	Mt. Pocono 2N AP	6.29	Everett 1SW	.75	
Rhode Island	Greenville	81	10	Kingston	25	14	Kingston	3.77	2 Stations	2.64	
South Carolina	3 Stations	93	10+	Chester 2WSW	26	29	Pineopolis Dam	5.34	Aiken	.48	
South Dakota	Wagner	97	15	Midland	10	27	Lead	2.01	10 Stations	.00	
Tennessee	Fayetteville 1NE	88	18	Mountain City 2	17	31	Haw Knob	3.34	Summitville	.16	
Texas	2 Stations	98	10+	Dumas	23	31	Port Mansfield	18.09	6 Stations	.00	
Utah	St. George PH	94	4	2 Stations	2	29+	La Sal	1.86	31 Stations	.00	
Vermont	Bennington 2NW	83	10	Cavendish	12	14	St. Albans Bay	5.87	Manchester Center	2.41	
Virginia	Fredericksburg	90	11	Chilhowie 1S	19	31	2 Stations	6.67	Wallace	.53	
Washington	2 Stations	91	5+	Lemanasky Lake 2	9	28	Spruce	7.02	Kennewick	.07	
West Virginia	Wellsburg 3NE	88	15	Birch River 6SSW	18	31	Pickens 1	3.28	2 Stations	.47	
Wisconsin	3 Stations	85	15+	Danbury 1SE	17	5	Oconomowoc 1SW	4.57	do	.80	
Wyoming	6 Stations	90	19+	Bondurant	-4	31	Alva SSE	2.20	18 Stations	.00	
Puerto Rico	Mayaguez	95	28	Guineo Reservoir	56	23+	Yabucoa 1NE	16.56	Los Canos	2.52	

+ And also on a later date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

OCTOBER 1958

State and station	Elevation (ground)	Pressure			Temperature										Precipitation					Wind				No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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State and station	Elevation feet	Pressure			Temperature										Precipitation										Wind			No. of days (sunrise to sunset)		Possible sunshine		
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more With thunderstorms	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		to sunset							
																			Total	Max depth on ground			Speed	Direction		Date	Clear	Partly cloudy	Cloudy		Sky cover, tenths (sunrise to sunset)	
ft	mb	mb	°F	°F	°F	°F	°F	°F	°F	°F	Max. 90° F or above	Min. 32° F or below	°F	%	In.	In.	In.	0.1 inch or more	With thunderstorms	In.	In.	M. p. h.	M. p. h.	Direction	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)		
IOWA																																
Burlington	694	993.2	1019.4	68	44	56.1	1.1	82	16	29	30	0	4	42	66	1.23	-1.72	0.80	3	3	0.0	0	9.3	SSW	33	W	10	17	8	6	3.7	83
Des Moines	948	987.1	1018.7	68	44	55.9	1.4	85	4	30	30	0	5	40	59	.07	-2.13	.04	2	1	.0	0	12.0	SSW	38	W	10	15	8	8	4.0	74
Dubuque	1065	992.2	1018.1	65	43	53.6	2.7	83	4	30	1	0	3	41	65	3.24	1.04	1.27	5	3	.0	0	---	---	---	---	---	13	9	9	4.5	--
Sioux City	1094	976.6	1018.2	69	42	55.5	2.9	90	15	27	30	1	6	36	54	T	-1.44	T	0	1	.0	0	10.9	WNW	40	NW	9	19	8	4	3.5	83
Waterloo	870	---	---	66	41	53.6	1.7	84	4	25	31	0	6	--	66	1.09	-1.07	.98	3	2	.0	0	12.9	---	---	---	---	---	---	---	---	---
KANSAS																																
Concordia (U)	1375	968.5	---	71	46	58.7	1.0	88	16	30	30	0	2	--	57	.28	-1.44	.28	2	2	.0	0	6.0	S	21	NW	20	19	7	5	2.8	85
Dodge City	2594	930.6	1018.8	72	45	58.7	.9	90	4	33	31	1	0	36	50	.06	-1.51	.06	1	1	.0	0	13.5	S	36	N	9	14	9	8	3.9	76
Goodland	3645	891.6	1019.0	70	35	52.7	.6	90	19	22	24	1	10	30	50	.32	-.72	.22	5	0	.0	0	9.9	S	*37	NW	21	19	5	7	3.4	--
Topeka	877	983.7	1019.8	72	45	58.4	.5	86	8	29	30	0	4	43	62	1.97	-.59	1.97	2	2	.0	0	9.9	S	34	S	20	17	5	5	3.3	80
Wichita	1321	969.9	1019.0	73	48	60.2	0	92	8	31	28	2	1	43	58	T	-2.18	T	0	0	.0	0	11.9	S	31	NE	9	12	10	9	4.4	77
KENTUCKY																																
Lexington	979	984.0	1020.3	68	45	56.5	-1.4	81	9	34	30	0	0	44	68	.86	-1.58	.68	5	2	.0	0	7.7	S	---	---	---	16	8	7	3.7	--
Louisville	474	1000.2	1019.8	70	46	58.3	-.3	83	17	33	31	0	0	45	68	1.65	-.80	1.19	7	2	.0	0	7.8	NW	25	NW	9	16	10	5	3.7	75
LOUISIANA																																
Baton Rouge	64	1015.6	1018.6	79	57	68.2	-1.4	90	10	48	26	1	0	57	73	1.06	-1.92	.46	6	0	.0	0	7.9	NNE	---	---	---	11	5	15	5.9	--
Lake Charles	12	1016.6	1018.0	78	62	70.1	-.2	89	9	53	31	0	0	59	71	1.45	-1.99	.62	6	0	.0	0	8.3	NE	*22	ENE	12	7	7	17	6.5	--
New Orleans (U)	9	---	---	77	64	70.5	-2.3	89	9	52	30	0	0	71	98	-2.68	-.67	.37	8	0	.0	0	7.1	---	---	---	13	7	11	5.3	62	
New Orleans	3	1015.6	1018.0	77	63	69.6	-1.8	87	10	53	29	0	0	59	72	.89	-2.29	.36	7	0	.0	0	10.9	NE	*29	NE	29	12	9	10	5.1	--
Shreveport	252	1010.2	1019.3	75	55	65.2	-2.3	88	9	41	28	0	0	54	71	.55	-2.55	.44	5	1	.0	0	8.2	NNE	---	---	---	8	4	19	6.8	59
MAINE																																
Caribou	624	992.4	1016.1	56	33	41.3	-.8	70	9	24	25	0	17	34	79	2.63	-.84	.62	14	2	1.9	T	10.7	S	*29	WSW	19	5	7	19	7.4	--
Portland	61	1013.2	1017.2	56	35	45.8	-2.6	71	17	20	14	0	12	39	81	4.36	1.38	1.35	10	1	T	0	11.4	NNE	32	SW	11	10	7	14	5.9	55
MARYLAND																																
Baltimore (U)	14	---	---	67	50	58.6	-.7	88	10	40	6	0	0	--	--	2.35	-1.02	1.61	3	---	---	---	---	---	---	---	---	---	---	---	---	---
Baltimore	146	1013.8	1018.7	67	47	57.0	.5	86	10	36	27	0	0	46	70	2.51	-.86	1.43	3	0	.0	0	12.2	WNW	40	NE	22	15	6	10	4.5	65
Frederick	294	---	---	66	43	54.5	-2.3	86	10	30	6	0	3	--	--	2.69	-.60	2.07	4	---	.0	0	---	---	---	---	---	---	---	---	---	---
MASSACHUSETTS																																
Blue Hill Obs. (R)	629	993.4	1017.0	59	42	49.2	-1.9	79	10	28	14	0	3	--	74	4.53	1.08	1.30	8	1	.0	0	14.7	WNW	46	W	10	7	10	14	6.4	54
Boston	15	1012.0	1016.7	60	45	52.6	-2.4	82	16	33	14	0	0	42	72	4.62	1.83	1.29	9	0	.0	0	12.6	NNW	*43	NNW	1	8	9	14	6.0	63
Nantucket	43	1016.4	1017.0	58	46	52.0	-1.0	68	8	35	19	0	0	45	78	2.95	-.65	1.27	9	0	.0	0	15.0	NE	38	NE	26	10	5	16	6.3	58
Pittsfield	1153	974.2	---	56	36	46.4	-1.1	77	16	21	14	0	11	--	--	4.00	1.07	1.78	9	---	T	T	---	---	---	---	---	---	---	---	---	---
Worcester	986	979.8	---	57	38	47.4	-3.2	78	10	28	14	0	8	--	--	3.01	-.16	1.34	9	---	T	T	13.2	---	*43	WSW	11	10	9	12	5.7	--
MICHIGAN																																
Alpena (U)	587	993.9	---	57	43	49.9	2.0	75	4	31	12	0	2	--	74	3.10	1.12	1.23	13	3	.0	0	10.2	W	33	W	10	7	8	16	6.5	54
Detroit	619	990.9	1017.7	65	45	55.0	2.1	81	16	32	6	0	1	42	64	1.11	-1.18	.38	9	5	.0	0	11.9	N	45	W	10	16	6	9	4.5	71
Detroit (Willow Run)	722	988.8	1017.5	65	44	54.3	1.8	80	16	31	6	0	1	42	68	1.55	-.62	.43	10	5	.0	0	9.0	WSW	*37	W	10	15	7	9	4.3	--
East Lansing (U)	856	---	---	65	44	54.6	4.1	81	14	32	29	0	2	--	--	1.91	-.54	1.10	6	2	.0	0	5.3	S	16	W	10	---	---	---	---	65
Escanaba (U)	594	993.2	---	56	43	49.5	2.4	75	4	31	5	0	2	--	79	1.51	-.53	.37	10	1	.0	0	10.0	---	34	NW	4	7	9	15	6.6	44
Flint	761	989.2	1017.4	63	41	51.8	1.4	78	15	27	6	0	5	41	72	1.25	-1.23	.82	4	2	.0	0	7.9	WSW	*27	SW	10	11	10	10	5.2	--
Grand Rapids	681	992.2	1017.6	64	42	52.7	2.4	77	15	29	29	0	5	41	69	3.11	.60	2.60	6	2	.0	0	10.4	S	34	SW	4	11	9	11	5.4	62
Marquette (U)	677	988.2	---	56	43	49.4	1.9	76	20	34	11	0	0	--	72	1.82	-.44	.66	14	1	.5	T	8.8	N	32	SW	20	3	11	17	7.4	43
Marquette	627	993.9	1017.5	62	44	52.6	2.3	72	21	30	12	0	1	43	69	2.78	.26	1.99	6	3	.0	0	---	---	---	---	---	---	---	---	---	---
Sault Ste. Marie	721	999.0	1016.6	54	38	46.2	1.8	66	4	25	12	0	8	40	80	2.17	-.81	.81	11	1	T	0	10.3	WNW	*27	WNW	31	4	10	17	7.0	44
MINNESOTA																																
Duluth	1409	974.3	1016.3	54	36	45.3	1.3	70	19	25	5	0	8	38	77	1.22	-1.00	.64	9													

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State and station	Elevation (ground) Ft	Pressure			Temperature										Precipitation						Wind				No. of days											
		Station g	Sea level Mb	Average maximum °F	Average minimum °F	Average °F	Departure from normal				No. of days Max 90° F or above Min 32° F or below	Average relative humidity		Total In	Departure from normal		Greatest in 24 hours	No. of days		Snow, Sleet		Average hourly speed M p.h.	Prevailing direction M p.h.	Fastest mile		No. of days		to sunrise	to sunset							
							Highest °F	Date	Lowest °F	Date		Average dew point °F	Average relative humidity %		Total In	Departure from normal	Greatest in 24 hours	0.1 inch or more	With thunderstorms	Total In	Max depth on ground In			Average hourly speed M p.h.	Prevailing direction M p.h.	Direction Date	Clear 0	Partly cloudy 4	Cloudy H	Sky cover, tenth sunrise to sunset	Possible sunshine					
NEW HAMPSHIRE (Cont'd.)																																				
Mt. Washington	6262	805.1		35	22	28.2	-3.5	53	10	8	6	0	23	87	7	97	2	07	1	37	19	4	17	9	10	36.4	W	210	WNW	11	6	5	20	7	2	41
NEW JERSEY																																				
Atlantic City	58	1017.5		64	47	55.5	-1.1	83	10	37	14	0	0	46	75	6	11	3	06	2.95	8	1	0	0	11.3	N			13	4	14	3	5	59		
Atlantic City (U)	10	1016.5	1017.8	64	46	55.0	-1.6	86	10	36	6	0	0	45	71	5	48	2	28	2.53	10	1	0	0	9.0	NNE	29	NW	1	4	10	12	6	5		
Trenton (U)	56	1010.2	1017.2	63	46	54.8	-1.3	84	10	34	6	0	0	45	71	5	48	2	28	2.53	10	1	0	0	9.0	NNE	29	NW	1	4	10	12	6	5		
NEW MEXICO																																				
Albuquerque	5310	851.0	1016.5	69	45	56.9	-1.3	82	9	31	31	0	2	36	50	1	72	1.08	90	5	3	T	0	8.8	N	34	E	25	16	6	9	4	1	66		
Clayton	4969			69	41	55.2	-1	85	19	25	31	0	3	36	50	1	72	1.08	90	5	3	T	0	8.8	N	34	E	25	16	6	9	4	1	66		
Raton	6379	809.0	1018.6	67	34	50.3	-1.8	82	19	20	23	0	13	36	50	1	72	1.08	90	5	3	T	0	8.8	N	34	E	25	16	6	9	4	1	66		
Roswell	3612	896.4	1017.6	71	47	58.6	-2.3	88	8	32	31	0	1	46	69	98	00	51	11	2	0	0	8.8	N	29	NW	8	13	6	12	5	2				
NEW YORK																																				
Albany	277	1013.7	1017.6	59	39	48.9	-1.8	82	16	21	14	0	7	40	75	3	68	1.47	1.21	10	0	0	0	11.1	S			12	13	6	4	1	77			
Binghamton	1590	958.0	1017.6	57	40	48.3	-1.6	77	14	23	6	0	4	38	72	2	17	1.57	1.47	10	0	0	0	11.1	S			12	13	6	4	1	77			
Buffalo	693	989.3	1017.8	61	44	52.2	-1.0	79	9	29	6	0	1	42	72	1.40	1.09	1.45	10	0	0	0	11.1	S			12	13	6	4	1	77				
New York (U)	10	1016.1		62	49	55.7	-1.3	81	10	38	26	0	0	42	72	1.40	1.09	1.45	10	0	0	0	11.1	S			12	13	6	4	1	77				
New York	19	1015.8	1017.8	63	49	56.0	-1.6	83	10	40	26	0	0	42	72	1.40	1.09	1.45	10	0	0	0	11.1	S			12	13	6	4	1	77				
Rochester	543	998.0	1017.5	61	42	51.2	-2.4	81	9	27	6	0	1	42	78	3	68	2.45	2.48	14	2	0	0	11.1	WSW	14	N	11	12	7	7	6	8			
Schenectady	217			59	41	50.0	-1.3	80	16	28	14	0	2	42	75	3	68	2.45	2.48	14	2	0	0	11.1	WSW	14	N	11	12	7	7	6	8			
Syracuse	424	995.9	1018.3	59	41	50.4	-2.0	82	9	28	6	0	3	42	75	3	68	2.45	2.48	14	2	0	0	11.1	WSW	14	N	11	12	7	7	6	8			
NORTH CAROLINA																																				
Asheville (U)	2203	939.8		67	44	55.5	-1.5	79	9	30	31	0	1	42	75	3	68	2.45	2.48	14	2	0	0	11.1	WSW	14	N	11	12	7	7	6	8			
Cape Hatteras (R)	9	1015.6	1016.3	70	58	63.8	-2.5	82	1	47	14	0	0	37	79	5.39	1.34	1.94	10	0	0	0	11.1	NNE			12	13	6	4	1	77				
Charlotte	725	990.5	1018.9	72	48	59.9	-1.6	88	10	34	31	0	0	48	71	1.55	1.44	1.72	7	0	0	0	11.1	NNE			12	13	6	4	1	77				
Greensboro	891	987.1	1019.4	69	45	56.9	-2.1	85	10	29	31	0	2	45	71	2.02	1.58	1.31	7	0	0	0	11.1	NNE			12	13	6	4	1	77				
Raleigh	433	1004.6	1018.6	67	47	58.3	-2.8	86	10	32	31	0	2	49	77	2.98	1.6	1.01	6	0	0	0	11.1	NNE			12	13	6	4	1	77				
Wilmington	30	1016.3		72	52	62.1	-3.2	86	10	39	30	0	0	46	69	3.24	1.1	2.49	7	0	0	0	11.1	NNE			12	13	6	4	1	77				
Winston-Salem	967	983.8	1019.4	70	47	58.4	-1.4	87	10	37	29	0	0	46	69	3.24	1.1	2.49	7	0	0	0	11.1	NNE			12	13	6	4	1	77				
NORTH DAKOTA																																				
Bismarck	1650	956.3	1017.3	63	32	47.5	1.8	89	13	21	29	0	14	34	62	49	-5.1	26	6	0	T	0	8.8	WSW	31	NW	9	12	8	11	3	6	68			
Devils Lake (U)	1471	962.1		58	34	46.1	2.2	87	13	23	11	0	13	34	62	49	-5.1	26	6	0	T	0	8.8	WSW	31	NW	9	12	8	11	3	6	68			
Fargo	895	987.1	1016.7	60	37	48.8	2.7	83	15	26	11	0	7	37	68	72	-5.4	59	5	0	T	0	14.1	N	17	NW	10	10	10	10	4	9	71			
Williston (U)	1877	933.0	1016.8	61	36	48.1	2.6	82	14	21	10	0	12	32	57	1.11	34	93	6	0	T	0	6.6	S	31	SW	9	10	6	10	3	8	59			
OHIO																																				
Akron	1210	980.6	1019.1	62	41	51.7	-1.3	77	15	31	30	0	2	41	72	1.63	1.16	20	6	1	0	0	11.1	S			12	13	6	4	1	77				
Cincinnati Obs.	761			69	45	57.3	-1	82	17	36	31	0	0	41	72	1.63	1.16	20	6	1	0	0	11.1	S			12	13	6	4	1	77				
Cincinnati	869	987.4	1019.7	68	45	56.1	-1	79	17	31	30	0	1	42	65	1.46	-71	74	7	3	0	0	8.6	SW	25	WNW	10	18	8	5	3	6	71			
Cleveland	787	990.2	1018.4	64	46	55.1	-1	80	15	36	19	0	0	43	68	1.63	-79	58	10	2	T	0	13.5	S	39	W	10	12	8	11	4	8	60			
Columbus (U)	724			65	45	55.2	-1	79	15	34	30	0	0	43	68	1.63	-79	58	10	2	T	0	13.5	S	39	W	10	12	8	11	4	8	60			
Columbus	815	989.5	1018.8	66	43	54.4	-1	80	15	30	30	0	3	43	71	1.27	-91	57	7	2	0	0	7.5	S	28	W	10	12	13	6	4	1	74			
Dayton	1002	986.4	1019.5	65	44	54.6	-1	78	15	33	29	0	0	41	65	1.68	-62	81	5	2	0	0	9.7	SSW	34	W	10	12	13	6	4	1	74			
Sandusky (U)	603	995.8		65	47	56.0	-1.0	82	16	37	30	0	0	41	65	1.68	-62	81	5	2	0	0	9.7	SSW	34	W	10	12	13	6	4	1	74			
Toledo	676	992.7	1018.4	65	42	53.4	-1	80	16	30	12	0	6	43	70	1.73	-1.59	28	7	3	0	0	11.1	WSW			17	6	8	4	10	26				
Youngstown	1178	975.4	1018.5	62	41	51.1	-2.8	78	15	29	6	0	3	41	73	.82	-1.95	.31	6	1	T	0	11.4	SSW	*43	W	16	12	10	9	5	6				
OKLAHOMA																																				
Oklahoma City	1280	975.6	1019.3	73	51	61.9	-1.3	90	8	35	29	1	0	48	63	T	-2.66	T	0	0	0	0	12.0	S	34	SW	7	11	6	14	3	7	60			
Tulsa	672	994.9	1019.5	73	51	62.3	-1.1	87	19	36	27	0	0	47	62	21	-2.88	T	0	0	0	0	7.2	S	28	N	9	9	7	15	5	8	62			
OREGON																																				
Astoria	8	1016.9	1017.6	64	46	55.1	-1.0	78	2	35	26	0	0	49	82	7.33	1.18	3.47	14	1	0	0	7.8	SE	*12	SSW	18	7	4	20	7	3	--			
Burns (U)	4140	876.1	1019.3	70	33	51.7	4.5	86	5	19	30	0	11	29	46	1.34	-1.26	.22	2	1	T	0	---	---	---	---	---	---	---	---	---	---	---	---		
Eugene	361	1004.7	1018.6	67	40	53.6	9	87	2																											

CLIMATOLOGICAL DATA

OCTOBER 1958

State and station	Pressure			Temperature										Precipitation						Wind				No. of days		Possible sunshine														
	Elevation feet	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity		Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet		Average hourly speed	Prevailing direction		Fastest mile		to sunset											
												Max 90° F or above	Min 32° F or below		Average	%				0.1 inch or more	With thunderstorms	Total	Max depth on ground				Speed	Direction		Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)						
													#			°F							%												In.	In.	In.	In.	In.	In.
Ft	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	#	°F	%	In.	In.	In.	In.	In.	In.	In.	In.	M.	M.	°F	°F	°F	°F	°F	°F	°F	°F								
TENNESSEE (Cont'd)																																								
Nashville	577	999.8	1020.1	73	47	59.6	-2.2	83	14	35	27	0	0	49	72	1.24	-1.28	0.71	3	1	0.0	0	0	5.5	S	26	NW	10	12	14	5	4.4	69							
Oak Ridge	905	986.5	-----	71	46	58.7	-1.1	80	18	30	29	0	1	---	---	.41	-2.01	.29	4	0	0.0	0	0	3.3	---	*23	---	1	14	9	8	4.3	--							
TEXAS																																								
Ablene	1759	957.3	1018.5	73	53	63.1	-3.1	92	9	40	31	1	0	52	69	3.72	1.15	2.71	12	2	0.0	0	0	7.4	SSW	26	SW	20	7	7	17	6.7	49							
Amarillo	3590	892.0	1017.7	71	46	58.1	-1.6	90	8	33	31	1	0	38	53	1.15	-1.78	1.13	3	0	0.0	0	0	9.1	SW	32	SW	6	14	5	12	4.6	71							
Austin	615	997.3	1019.2	75	60	67.5	-3.4	90	9	47	31	1	0	59	77	5.18	2.23	1.47	12	1	0.0	0	0	8.6	N	26	N	4	21	7.8	27									
Brownsville	16	1013.5	1016.0	79	66	72.8	-3.2	89	9	50	30	0	0	69	93	17.12	14.21	3.96	16	3	0.0	0	0	10.5	NW	32	NW	29	2	11	18	7.6	37							
Corpus Christi	41	1015.6	1016.9	78	66	71.8	-2.7	89	9	50	29	0	0	66	85	8.43	5.97	2.64	11	1	0.0	0	0	10.7	NNE	26	N	1	2	21	7.8	53								
Dallas	487	1000.7	1019.3	74	58	66.4	-2.4	89	9	47	28	0	0	53	66	.82	-1.85	.42	7	2	0.0	0	0	9.0	S	30	S	20	10	6	15	6.6	45							
Del Rio (U)	957	-----	-----	75	61	67.9	-3.6	91	9	46	31	1	0	---	---	4.48	2.28	1.58	10	1	0.0	0	0	---	---	---	---	---	---	---	---	---	---							
El Paso	3920	888.6	1016.4	72	53	62.5	-2.7	85	9	35	31	0	0	49	64	1.98	1.15	.84	8	2	0.0	0	0	10.6	N	34	NW	8	12	8	11	5.5	57							
Fort Worth	544	998.6	1019.5	75	57	65.8	-2.7	90	9	43	28	1	0	54	68	1.07	-1.62	.39	8	2	0.0	0	0	10.4	NNE	*29	SW	8	10	6	15	6.4	--							
Galveston (U)	7	-----	-----	76	66	71.0	-2.6	85	9	51	30	0	0	---	---	.96	-2.63	.42	7	0	0.0	0	0	12.7	---	32	NE	29	---	---	---	---	57							
Galveston	5	1015.6	1018.0	76	67	71.4	-2.4	86	9	52	30	0	0	63	77	1.97	-1.87	.78	7	0	0.0	0	0	10.5	NE	---	---	---	7	9	15	6.8	--							
Houston (U)	41	1012.9	-----	77	63	70.0	-2.6	89	9	51	29	0	0	---	---	5.90	2.51	3.40	11	1	0.0	0	0	9.2	NE	28	NE	29	6	17	6.9	47								
Houston	50	1015.2	1018.1	77	62	69.6	-1.8	89	9	50	30	0	0	63	81	2.03	-1.67	.90	11	1	0.0	0	0	11.3	NE	---	---	---	5	8	18	7.2	--							
Laredo	500	1002.7	1017.9	78	64	70.7	-5.8	95	9	48	29	3	0	64	83	8.28	6.71	1.62	16	3	0.0	0	0	9.0	ENE	*41	E	10	4	7	20	7.8	--							
Lubbock	3243	906.5	1018.4	70	49	59.5	-1.7	88	8	35	22	0	0	46	67	.94	-1.13	.29	9	0	0.0	0	0	9.4	SW	*29	W	20	8	6	16	5.9	--							
Midland	2854	919.4	1018.3	70	53	61.5	-5.1	90	9	39	30	1	0	51	72	2.40	-.62	.86	11	0	T	0	0	8.0	ENE	*23	NE	25	7	8	16	6.6	--							
Port Arthur	15	1016.6	1017.9	77	61	69.3	-1.2	89	10	50	31	0	0	61	77	1.72	-1.21	.79	8	0	0.0	0	0	10.8	NNE	*31	NE	30	6	16	6.6	48								
San Angelo	1903	951.2	1018.5	71	54	62.9	-5.1	91	9	41	31	1	0	53	74	1.86	-.39	.65	9	0	0.0	0	0	9.1	SW	*25	SW	7	7	18	6.8	--								
San Antonio	792	993.2	1018.2	75	61	67.7	-3.6	89	9	46	31	0	0	59	78	5.43	3.33	1.21	14	0	0.0	0	0	9.5	NNE	28	N	1	5	4	22	7.8	36							
Victoria	110	1012.9	1017.4	77	63	70.0	-3.6	88	10	51	30	0	0	64	81	8.08	5.20	1.80	11	2	0.0	0	0	8.7	NNE	*33	NE	29	3	8	20	7.8	--							
Waco	500	997.6	1018.6	76	58	66.7	-2.7	91	9	46	31	1	0	57	74	1.24	-1.17	.30	7	2	0.0	0	0	9.3	NE	*22	S	20	6	4	21	7.2	--							
Wichita Falls	1020	981.7	1018.6	76	54	66.8	-.5	95	9	39	28	4	0	48	59	.84	-1.94	.48	5	0	0.0	0	0	8.9	S	*23	S	6	9	10	12	5.6	--							
UTAH																																								
Midford	5028	847.3	1019.0	72	32	52.0	1.9	83	14	13	22	0	16	---	---	.07	-.81	.07	2	0	0.0	0	0	---	---	---	---	---	22	4	5	2.6	--							
Salt Lake City	4220	865.9	1019.3	72	39	55.3	2.4	85	13	26	30	0	7	30	41	T	-1.34	T	0	0	0	T	T	8.3	SSE	39	NW	19	19	8	4	3.0	88							
VERMONT																																								
Burlington	331	1002.2	1017.2	56	39	47.3	-.9	76	16	24	14	0	5	39	76	4.66	1.77	1.04	13	3	T	0	0	9.7	S	36	W	10	7	5	19	6.9	49							
VIRGINIA																																								
Lynchburg	947	984.8	-----	67	46	56.8	-1.0	86	10	36	31	0	0	---	---	1.72	-1.15	.93	9	1	0.0	0	0	8.0	---	31	NE	21	17	7	7	3.9	65							
Norfolk	26	1016.5	1017.8	68	54	61.4	-.2	86	10	43	28	0	0	---	---	4.88	2.43	2.81	7	1	0.0	0	0	10.7	NE	46	NE	21	13	5	13	4.4	56							
Richmond	162	1012.6	1019.0	69	49	58.7	-.1	87	10	35	31	0	0	45	77	5.35	2.74	2.76	7	2	0.0	0	0	7.4	NNE	26	N	21	14	6	11	5.0	56							
Roanoke	1174	977.5	1019.8	68	46	57.0	-.9	86	9	32	7	0	1	42	63	1.12	-2.27	.44	4	1	0.0	0	0	8.4	NW	---	---	---	19	2	10	4.2	--							
WASHINGTON																																								
Olympia	190	1010.8	1018.2	63	42	52.4	1.4	76	2	30	25	0	5	45	80	5.41	.91	2.25	11	0	0.0	0	0	6.0	SSW	*35	SSW	18	7	4	20	7.3	--							
Seattle (U)	14	-----	-----	63	50	56.3	1.9	73	4	42	24	0	0	---	---	3.12	.04	1.21	11	0	0.0	0	0	---	---	40	SW	18	---	---	---	---	48							
Seattle	14	1016.3	1017.7	62	46	53.9	2.2	75	2	37	28	0	0	46	78	3.99	-.67	2.13	10	1	0.0	0	0	6.6	S	---	---	---	---	---	---	---	---							
Seattle-Tacoma	386	1003.4	1017.6	62	46	53.9	2.2	75	2	37	28	0	0	46	78	3.99	-.67	2.13	10	1	0.0	0	0	10.6	N	*54	SW	18	8	4	19	7.3	--							
Spokane	2357	934.0	1019.1	62	39	50.2	1.6	80	4	24	24	0	4	37	65	.79	-.54	1.5	0	0	0.0	0	0	7.9	ENE	38	SW	7	12	9	10	5.3	67							
Stamper Pass (R)	3958	881.5	1020.5	51	39	44.9	2.5	71	3	29	24	0	8	---	---	10.04	.70	4.43	12	3	8.1	4	0	---	---	---	---	7	4	20	7.1	--								
Tacooosh (R)	101	1013.5	1016.5	57	48	52.3	-.4	63	30	43	22	0	0	48	87	8.49	-.23	2.02	14	0	0.0	0	0	17.8	E	52	S	18	3	6	22	8.1	49							
Walla Walla (U)	949	983.7	1019.6	67	44	55.5	-.3	87	3	30	24	0	1	---	---	.44	-1.04	.23	6	0	0.0	0	0	4.6	---	---	---	4	19	12	6	13	5.4	80						
Yakima	1061	980.0	1019.0	67	34	50.2	-.4	85	5	22	24	0	12	37	65	-.29	-.33	.15	4	0	0.0	0	0	6.4	WNW	*31	WSW	18	9	6	16	6.0	--							
WEST VIRGINIA																																								
Charleston	950	984.0	1019.8	67	44	55.6	-1.8	82	15	31	31	0	1	44	69	1.58	-1.23	.68	7	0	0.0	0	0	5.6	SW	18	WSW	11	14	10	11	5.5	--							
Elkins	1970	-----	-----	63	38	50.8	-.9	77	9	26	31	0	8	41	---	-.99	-.87	.28	8	0	0.0	0	0	6.3	---	*25	WNW	24	14	6	11	5.2	--							
Huntington (U)	565	-----	-----	69	45	56.8	-2.4	83	15	34	31	0	0	---	---	1.31	-1.12	.43	6	0	0.0	0	0	---	---	---	---	---	---	---	---	---	---							
Frederickburg (U)	615	-----	-----	66	44	55.0	-1.9	80	15	30	30	0	2	---	---	1.28	-.84	.59	7	1	0.0	0	0	5.1	---	20	NW	10	14	8	9	4.3	69							
WISCONSIN																																								
Green Bay	689	993.9	1015.5	61	40	50.6	2.2	77	4	28	12	0	6	43	78	2.25	-.45	1.17	7	5	T	0	0	11.5	SW	*37	W	10	9	8	14	6.0	50							
La Crosse	652	991.5	1016.4	65	43	53.9	3.1	85	15	30	30	0	2	43	67	8.0	-1.13	.46	6	2	0.0	0	0	10.2	S	*38	WNW	10	10	10	11	5.5	--							
Madison	857	981.7	1017.4	65	41	52.8	2.4	81	4	30	28	0	7	41	68	2.50	-.42	1.44	6	2	0.0	0	0	10.0	SW	36	SW	10</												

HEATING DEGREE DAYS

(Base 65° F.)

OCTOBER 1958

State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				KANSAS				NEW YORK				TEXAS (Cont'd.)			
Birmingham	107	107	136	Concordia (U)	236	286	332	Albany	499	657	606	Lubbock	197	221	196
Mobile	37	37	28	Dodge City	240	290	302	Binghamton	513	754	789	Midland	161	171	
Montgomery	59	59	69	Goodland	374	481	508	Buffalo	395	540	601	Port Arthur	46	46	20
ARIZONA				Topeka	244	298	338	New York (U)	236	335	302	San Angelo	143	145	72
Flagstaff	508	781	956	Wichita	206	241	251	New York	296	322	278	San Antonio	75	75	25
Phoenix (U)	1	1	13	KENTUCKY				Rochester	428	603	616	Victoria	51	51	0
Phoenix	4	4	22	Lexington	272	312	315	Schenectady	460	585	612	Waco	71	71	44
Prescott	196	249	295	Louisville	229	252	283	Syracuse	451	608	542	Wichita Falls	120	124	120
Tucson	27	27	24	LOUISIANA				NORTH CAROLINA				UTAH			
Winslow	193	221	294	Baton Rouge	42	42	27	Asheville (U)	292	333	312	Malford	399	530	576
Yuma	0	0	0	Lake Charles	35	35	22	Cape Hatteras (R)	77	77	63	Salt Lake City	300	416	469
ARKANSAS				New Orleans (U)	29	29	5	Charlotte	178	180	154	VERMONT			
Ft. Smith	140	155	140	New Orleans	28	28	7	Greensboro	253	274	231	Burlington	543	775	759
Little Rock	115	125	120	Shreveport	85	85	53	Raleigh	217	240	165	VIRGINIA			
Texarkana	110	114	69	MAINE				Wilmington	126	128	73	Lynchburg	264	298	285
CALIFORNIA				Caribou	727	1263	1282	Winston-Salem	220	233	210	Norfolk	132	139	161
Bakersfield	7	7	41	Greenville (U)	700	1184		NORTH DAKOTA				Richmond	212	236	243
Bishop	161	181	308	Portland	586	1245	785	Devils Lake (U)	535	808	891	Roanoke	256	286	283
Blue Canyon	187	334	551	MARYLAND				Fargo	580	987	1038	WASHINGTON			
Burbank	7	8	70	Baltimore (U)	226	247	236	Grand Forks	498	766	867	Olympia	383	612	815
Eureka (U)	317	940	1114	Baltimore	261	313	328	Pembina	551	886		Seattle (U)	265	384	557
Fresno	21	23	86	Frederick	331	407	323	Williston (U)	531	887		Seattle-Tacoma	338	537	749
Los Angeles (U)	2	2	58	MASSACHUSETTS				OHIO				Spokane	452	693	758
Los Angeles	0	0	196	Blue Hill Obs. (R)	488	697		Akron	517	835	937	Stampede Pass (R)	615	1361	1626
Mt. Shasta (R)	269	452	682	Boston	386	476	399	Cincinnati (U)	407	557	478	Tatoosh Island (R)	386	1100	1304
Oakland	81	130	394	Nantucket	393	536	539	Cincinnati	214	236	264	Walla Walla (U)	303	404	401
Red Bluff	26	29	59	Pittsfield	570	864	844	Cleveland	282	334	378	Yakima	452	659	603
Sacramento (U)	19	22	92	MICHIGAN				Columbus	316	423	425	WEST VIRGINIA			
Sacramento	27	27	120	Alpena (U)	462	787	880	Dayton	326	397	414	Charleston	289	344	310
Sandberg (R)	148	222	237	Detroit	323	440	485	Sandusky (U)	323	401	403	Elkins	432	607	574
San Diego	1	1	94	Detroit (Willow Run)	333	451	499	Toledo	299	375	393	Huntington (U)	257	291	245
San Francisco (U)	112	450	604	East Lansing (U)	329	473		Youngstown	367	507	501	Parkersburg (U)	305	362	328
San Francisco	74	109	555	Escanaba (U)	471	821	959	OKLAHOMA	428	600	457	WISCONSIN			
San Jose	39	38	141	Grand Rapids	474	552	649	Oklahoma City	158	175	168	Green Bay	437	710	788
Santa Maria	75	194	460	Marquette (U)	477	871	935	Tulsa	146	164	170	La Crosse	350	500	630
COLORADO				Muskegon	379	570	688	OREGON				Madison	371	546	653
Alamosa	643	958	1142	S. Ste. Marie	575	1105	1172	Astoria	303	670	733	Milwaukee	348	510	614
Colorado Springs	399	545	575	MINNESOTA				Burns (U)	403	676	818	WYOMING			
Denver	342	466	561	Duluth (U)	603	1117	1048	Eugene	349	467	592	Casper	465	696	845
Grand Junction	278	340	369	Duluth	607	1104	1096	Hecham	440	846	1089	Cheyenne	467	754	890
Pueblo	312	374	457	Internat. Falls	622	1195	1260	Medford	234	325	403	Lander	472	725	906
CONNECTICUT				Minneapolis	370	527	641	Pendleton	326	427	457	Sheridan	491	771	885
Bridgeport	369	450	400	Rochester	400	666	743	Portland (U)	187	260	392	ALASKA			
Hartford	473	622	499	St. Cloud	489	783	880	Portland	295	408	482	Anchorage	1094	2196	1939
New Haven	396	500	474	MISSISSIPPI				Roseburg	287	388		Barrow	544	1243	1397
DELAWARE				Jackson	83	83	69	Salem	296	408	483	Barter Island	1406	3789	4126
Wilmington	297	361	329	Meridian	82	82	90	Sexton Summit (R)	319	621	782	Bethel	1125	2438	2327
DIST. OF COLUMBIA				Vicksburg (U)	79	80	51	PENNSYLVANIA				Cold Bay	752	2213	
Washington (U)	208	231	263	MISSOURI				Allentown	397	499	464	Cordova	886	2182	1983
Washington	203	225	274	Columbia	224	276	330	Harrisburg	336	398	377	Fairbanks	1555	2574	2220
FLORIDA				Kansas City	176	203	284	Philadelphia (U)	278	311	252	Juneau	736	1803	1850
Apalachicola (U)	21	21	17	St. Joseph	244	293	319	Philadelphia (U)	296	360	316	King Salmon	999	2199	
Daytona Beach	9	9	0	St. Louis (U)	170	198	240	Pittsburg (U)	312	378	354	Kotzebue	1465	2834	2775
Fort Myers	0	0	0	St. Louis	214	257	278	Reading (U)	393	534	491	McGrath	1404	2672	2352
Jacksonville	30	30	16	Springfield	247	299	318	Scranton	313	370	347	Nome	1239	2762	2745
Key West	0	0	0	MONTANA				Williamsport	408	532	494	St. Paul	811	2529	2513
Miami	0	0	0	Billings	403	620	719	RHODE ISLAND				Yakutat	775	1943	1979
Miami Beach	0	0	0	Glasgow	540	837	862	Block Island	369	464	445				
Orlando	6	6	0	Great Falls	400	754	871	Providence	415	531	514				
Pensacola (U)	26	26	18	Havre (U)	512	809	892	SOUTH CAROLINA							
Tallahassee	33	33	31	Helena	561	937	1039	Charleston (U)	66	66	34				
Tampa	3	3	0	Kalispell	656	1076	1095	Charleston	113	113	52				
West Palm Beach	0	0	0	Miles City	431	613	729	Columbia	148	151	82				
GEORGIA				Missoula	608	980	994	Florence	133	136	94				
Athens	146	148	105	NEBRASKA				Greenville	160	166	141				
Atlanta	117	117	118	Grand Island	331	414	459	Spartanburg	176	184	143				
Augusta	134	135	59	Lincoln (U)	249	298	396	SOUTH DAKOTA							
Columbus	86	86	78	Norfolk	361	451	561	Huron	426	575	647				
Macon	78	78	63	North Platte	416	535	563	Pierre	418	530					
Rome	175	180	148	Omaha	272	333	424	Rapid City	412	576	749				
Savannah	84	84	38	Scottsbluff	398	530	593	Sioux Falls	397	525	664				
IDaho				Valentine	449	597	627	TENNESSEE							
Boise	299	447	524	NEVADA				Bristol	264	286	297				
Lewiston	360	490	539	Elko	505	758	809	Chattanooga	174	182	193				
Pocatello	421	607	670	Ely	534	798	855	Knoxville	169	174	212				
ILLINOIS				Las Vegas	42	42	61	Memphis	138	149	143				
Chicago (U)	156	174	189	Reno	377	552	696	Nashville	187	203	176				
Chicago	255	326	440	Tonopah	279	343	523	TEXAS							
Chicago University	251	331		Winnemucca	462	676	705	Abilene	133	139	103				
Moline	289	407	467	NEW HAMPSHIRE				Amarillo	233	270	277				
Peoria	274	358	436	Concord	544	771	787	Austin	74	74	30				
Springfield	276	342	404	Mt. Washington Obs.	1133	2903		Brownsville	32	32	0				
INDIANA				NEW JERSEY				Corpus Christi	38	38	0				
Evansville	256	298	274	Atlantic City (U)	266	305	259	Del Rio (U)	68	68					
Ft. Wayne	343	461	501	Newark	323	360	348	El Paso	120	136	70				
Indianapolis	318	403	385	Trenton (U)	329	383	340	Ft. Worth	82	82	58				
South Bend	325	463	500	NEW MEXICO				Galveston (U)	35	35	0				
IOWA				Albuquerque	249	284	228	Houston (U)	52	52	0				
Burlington	288	386	419	Clayton	309	391	386	Houston	48	48	7				
Des Moines	304	413	471	Roswell	217	255	164	Laredo	58	58	0				
Dubuque	349	532	629												
Sioux City	315	404	558												

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

OCTOBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MASSACHUSETTS Boston and suburban area	1	Late forenoon					3	1	Wind and rain	Winds, with gusts to 50 m.p.h., damaged boats along shoreline. Power outage for 500 homes in Lynnfield from tree falling on line. Minor dam- age from flooding from heavy rains.
FLORIDA Valpariso, Okaloosa County	1	3:45 p.m.			0	0			Waterspout	
IOWA Alexander (1-1/2 miles north of), Franklin County	6	8 a.m.					4	1	Electrical	Burned large barn and contents.
KANSAS Mitchell and Jewell Counties	6	9:15-9:50 a.m.	25	*1 to 3					Wind, hail, and rain	Wind and hail caused material damage, but main damage from high winds. Hailstones mostly pea size. Many tree limbs broken and roofs blown off some buildings. Grain sorghums blown down and broken. Winds estimated at 70 m.p.h. Dashing rain caused some washing of newly seeded wheat fields. Storm moved northeast- ward.
NEBRASKA Goehner (near), Seward County	6	1:30-3:30 p.m.	3	300			3	4	Hail	Hailstones 3/4 to 1-1/2 inches in diameter. Ground covered to depth of 1-1/2 inches. Storm moved east-northeastward.
KANSAS Stafford County	6	6:10-6:40 p.m.	10	1400	0	0	5		Funnel aloft, hail, wind, and rain	Quite a large area in central Stafford County affected by violent hail, wind, and rain. Funnel cloud sighted 2 miles north of Stafford. Heavy rains up to 4 inches reported. Hail- stones varied in size from 1/2 to 1 inch in diameter. Trees stripped of leaves and small branches; roofs, windows and neon signs dam- aged; foliage stripped from grain sorghum stalks and much of grain beaten from the heads. 400 insurance claims filed in 10 days. Erosion and silting from heavy rain damaged newly seeded wheat fields. Storm moved east- northeastward.
	7									Minor storms reported at Emmons and Hornick, Iowa; at Richmond, Mo.; and near Howard, S. Dak.
	7-8									Minor storm reported in Hennepin and Ramsey Counties, Minn.
IOWA Central, east-central, and south- eastern portions	8	7-11 p.m.	150	*30			5	6	Wind, hail, and rain	Thunderstorms associated with squall line dam- aged homes, farm buildings, public buildings' utilities, and livestock. In west, most dam- age by hail; in central, wind caused greatest damage; in east, destruction by wind and rain. Storm moved eastward.
MISSOURI Nodaway, Worth, and Harrison Counties	8	7:05-7:40 p.m.	26	300- 700	2	7	5	4	Tornado, rain, and hail	Tornado began near Pickering and continued eastward to near Grant City and on to near Eagleville. Several sets of farm buildings destroyed. 1 woman killed when her farm home demolished. Pickup truck with several persons aboard hurled into ditch near Grant City. Heavy rains dropped from 2.50 to 6.00 inches and hail size of golf balls along storm path. Several roads impassable and many phone and powerlines downed.
WISCONSIN Kenosha, Kenosha County	8	9:30 p.m.					4	1	Wind and hail	
WISCONSIN Rock County (southeastern portion)	8	11 p.m.					4	1	Wind and rain	
	8									Minor storms also reported in Calhoun and Jackson Counties, Mich.; at Brookfield, Mo., and in northern Willamette Valley, Oreg.
ILLINOIS Stephenson, Winnebago, Boone, Mc- Henry, and Lake Counties	8-9	11:30 p.m. 8th- 1 a.m. 9th	80		1	0	6		Wind and tornadoes	Heavy thunderstorms with one or more tornadoes associated moved eastward at approximately 50 m.p.h. Intermittent but nearly straight path extended from Rock City to Waukegan. 2 house trailers wrecked near Rock City and Durand. Motorist killed at Chemung as falling tree struck automobile. Heaviest damage in shopping center on northwest side of Waukegan. Most storm damage probably caused by widsqualls,

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

OCTOBER 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
ILLINOIS (Cont'd.)										but structural damage plus other evidence indicates tornadic action near Fox Lake, near Round Lake, and in parts of Waukegan.
	8-9									Minor storm also reported at Trenton, Mo.
MICHIGAN Allegan, Kent, and Ottawa Counties	9	12:30 a.m.					4	4	Wind, hail, and rain	High winds damaged homes, trees, and utility lines. Hail caused losses to apples and late field crops and damaged greenhouses. Heaviest wind losses in Western Allegan County and South Haven area. Heavy rains in some localities. Damage by wind estimated at \$45,000, by hail \$20,000. Storm moved eastward.
MICHIGAN Macomb County	9	8:15 a.m.					4	3	Hail	Hail up to 1 inch in diameter damaged greenhouses, roofs, windows, and awnings, and also caused losses to apple orchards. Heaviest damage in vicinities of Armada and Romeo.
MICHIGAN Vickeryville, Montcalm County	9	Morning					4	1	Electrical	Barn and contents destroyed by lightning.
WISCONSIN Hudson (2 miles north of), Saint Croix County	9	Noon	8	50	0	0	4	3	Tornado	Skipped northeastward along path.
MISSOURI Jefferson City, Cole County	9	2:20 p.m.							Rain, wind, and hail	Heavy rain, strong winds, and 1/2 inch hail. Flash flooding of several streets when Weir's Creek overflowed. Many homes with water in basements.
WISCONSIN Portage, Columbia County	9	4:30 p.m.			0	0			Funnel aloft	Moved northeastward.
WISCONSIN Madison, Dane County	9	4:45 p.m.			0	0	1	1	Tornado	Briefly touched ground; moved northeastward.
MISSOURI Eldon, St. Elizabeth, and Tuscumbia in Miller County	9	5 p.m.					4	4	Rain, hail, and wind	Flash flooding on Little Saline Creek. Heavy hail and some wind damage.
MISSOURI Sullivan, Franklin County	9	5:04 p.m.					2		Funnel aloft, hail, and rain	Accompanied by 1/2 inch hail and heavy rains. Storm moved northeastward.
WISCONSIN Lebanon, Dodge County	9	5:30 p.m.			0	0			Funnel aloft	Moved northeastward.
	9									Minor storms also reported at Connersville, Greencastle, and near Lebanon, Ind.; at Clinton, Iowa; at Carleton and near Monroe and St. Johns, Mich.; at Auxvasse and Green Ridge, Mo.; and at Holdenville, Okla.
LOUISIANA Grand Lake, Cameron Parish	10	12:36 p.m.			0	0			Funnel aloft	Reported by pilot; may have been waterspout on Calcasieu Lake.
TEXAS Corpus Christi (9 miles north of), Nueces County	10	1:10 p.m.			0	0			Waterspout	
NEW YORK Northern third	10	Late afternoon							Wind and electrical	Line squalls and sharp thunderstorms with winds to 60 m.p.h., caused usual damage from Mohawk Valley northward. Trees and power- and communication lines downed. Lightning set fire to barn in Messana, damage estimated at \$15,000.
	10									Minor storms also reported in Rose Bud area, Ark.; in Berkshire County, Mass.; near Alba, Tex.; and in Franklin County, Vt.
	11									Minor storms reported in Aroostook and Penobscot Counties, Maine; and in eastern Massachusetts.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

OCTOBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
ARIZONA Thatcher and vicinity, Graham County	12	Evening					3	5	Rain and hail	Hail and rain damaged cotton in fields. Flash floods damaged property.
FLORIDA Lake Okeechobee	13	8:40 a.m.			0	0			Funnel aloft	Cloud sighted over Lake Okeechobee.
NEW MEXICO Corona (10 miles north- west of), Torrance County	13	12:45 p.m.			0	0	1	1	Tornado	Observed from distance moving eastward over open country. Thought to have touched ground for a few minutes.
NEW MEXICO Cienega (25 miles north- east of), Otero County	15	3:15 p.m.			0	0			Funnel aloft	Reported sighted over uninhabited country. Un- able to confirm or get any details.
NEW YORK Wilmington, Essex County	16	4:30 p.m.	1/4	30	0	0	4		Tornado	Struck home 4 miles southeast of Wilmington, 1 mile northwest of Upper Jay. Possible second tornado 2 or 3 miles east of Upper Jay. Tornado moved northeastward.
VERMONT, northern portion; NEW HAMPSHIRE, northern portion; and MAINE	16						4	1	Electrical, wind, and hail	\$5,000 loss in fire due to lightning at Starks, Maine, and many minor losses from wind in 3- state area as trees toppled onto power- and phone lines. Some lightning damage to power- lines. Hail reported in Grand Isle, Vt., area.
MICHIGAN Lower extreme southern portion	16-17	8 p.m. 16th- 1 a.m. 17th					5	4	Electrical and hail	Lightning destroyed 3 barns, damaged many buildings and utility lines. Hail fell in some areas of Kalamazoo, Calhoun, and Wash- tenaw Counties, damaging property and crops. Estimated hail damage \$20,000.
PENNSYLVANIA Pulaski	17	6 a.m.					4	1	Electrical	Barn and contents fired by lightning.
FLORIDA Key West, Monroe County	17	9 a.m.			0	0			Waterspout	Moved southwestward.
	17									Minor storm also reported at Monroe, Maine.
OREGON Entire State	18-19	Early on 18th- 19th			4	3	4	2	Wind, rain, and electri- cal	Winds, which in gusts reached speeds of estimat- ed 70 to 80 m.p.h., at some points, tangled and broke power- and telephone wires in areas - scattered over most of State. 4 persons kill- ed at widely separated points by wind-felled trees. Felled-trees also damaged buildings. Winds blew roofs off several buildings, broke a number of windows, caused structural damage to several farm buildings, blew down outdoor signs, and at one time left hundreds of sub- scribers without telephone service; near Pendleton, clouds of dust across highway forced State Police to set up and direct one- way traffic. Along north coast, lightning quite violent and at least 1 person injured by it while using telephone. Wind probably caused all damage, but \$1,000 due to light- ning. Storm moved eastward.
WASHINGTON Entire State	18-19				1	3	4	2	Wind	Wind speeds ranged from 45 to 70 m.p.h., as storm system crossed western Washington on 18th and eastern Washington during early morn- ing hours of 19th. Power- and communication lines damaged in all areas. Large plate-glass windows broken in a few localities and numer- ous buildings damaged by falling trees in area west of Cascades. 2 persons injured when large tent in Seattle blew down. Hunter killed and another injured in Blue Mountain area of east- ern Washington when tree blew down on tent in which they were sleeping.
FLORIDA Casey Key, Sarasota County	19	3:30 a.m.	** 500	15	0	0	4		Tornado and waterspout	This tornado originated as waterspout over Gulf of Mexico, moved eastward inland to damage several beach residences. Indicated path that over land.
IDAHO Most of State south of Sal- mon River	19	8 a.m.- late afternoon			2	30			Wind, dust, snow, and rain	Cold front entered State from west and sped across State, leaving trail of damage in a score or more of communities. In duststorm, near Payette, car struck from behind by lumber truck, resulting in death to young

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

OCTOBER 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
IDAHO (Cont'd.)										girl and serious injuries to 2 adults. In Owyhee County, snow accompanied high winds at higher elevations and 2 women in hunting party lost; 1 rescued, but other froze to death. Considerable structural damage reported in southwest, along with uprooting of trees, breaking of numerous limbs, and disruption of power and telephone services. Farther east in State, damage to buildings more scattered, but dust-storms widespread and as consequence traffic accidents numerous. Between Burley and Strevel, 8 cars involved, along with bus, and 25 persons injured, 15 of them passengers in bus. Other traffic accidents involving bodily injuries occurred as result of duststorms or high winds blowing cars out of control near Murtaugh, Minidoka, Bridge, Rigby, Rexburg, and in Rockland-Roy area in Power County. Communities where buildings damaged to considerable extent included Fruitland, Caldwell, Boise, Burley, Pocatello, McCammon, and Montpelier. High winds lasted generally from about 1/2 hour up to 2 hours at points in path of storm front. Gusts up to 60 and 70 m.p.h., reported in many places. Precipitation in this storm generally light.
FLORIDA Pahokee area, Palm Beach County	19	8:45 a.m.	26	425	1	24	5		Tornado and wind	Storm travelled east-northeastward from Pahokee to near Pratt and Whitney plant near Indian-town. Much of path over inaccessible areas. Path width varied from 1/10 to 4/10 mile. Some wind damage occurred later near Jupiter after storm noted at Pratt-Whitney plant, but not thought due to tornado as Jupiter not in line with tornado path. Total damage not estimated but thought to be in \$300,000 to \$500,000 range as several crop dusting planes and numerous dwellings destroyed along path. Damages at Pratt-Whitney plant estimated \$90,000.
ALABAMA Montgomery, Montgomery County	19	4:30 p.m.					3	1	Hail and rain	Hail around 1/2 inch, mostly over east Montgomery, with some stones size of golf balls. Running water made some drifts heavy enough to cover ground. No reported damage, but likely some unseen roof damage.
UTAH Western portion	19						4		Wind and dust	Strong winds accompanying passage of cold front caused considerable blowing dust and widespread minor property damage. Limbs ripped off and trees toppled, causing numerous power failures; walls blown over, plate-glass windows broken, planes on ground damaged, and other minor damage occurred. Strong winds hampered fire fighting efforts on at least 20 range and forest fires. Highest winds reported at Provo where gusts over 80 m.p.h.
	19									Minor storm also reported in Del Norte County, Calif.
COLORADO Northeastern portion	19-20	Evening 19th-all day 20th					4		Wind	Gusty, northwest wind did much damage to corn fields that were ready for picking. Estimated 50 percent of ear corn blown from stalks to ground in some areas. Most downed-corn harvested by hand picking; loss to farmers largely from added harvesting cost. Damage to buildings, signs, cars, etc., reported over wide area. At Greeley, east wall of building under construction blown down at State College.
NORTH CAROLINA Coastal sections	19-21						5	5	Northeaster	Vigorous low pressure storm became nearly stationary off North Carolina coast on 19th and remained there until, much weakened, it moved inland on 23d. Wind gusts to 70 m.p.h., recorded at intervals from Cape Fear to Virginia line, causing above-normal tides and resultant damage from both wind and water. Trees blown down and power- and communication lines damaged. Outer Banks highway cut in a number of places. Heaviest structural damage was in Nags Head area, where some roofs reported blown off; heaviest water damage at New Bern, where 5 or 6 blocks of buildings affected by high water. Corn, cotton, soybeans, lespedeza, and hay suffered light damage over coastal counties. Newspapers carried reports of four U. S. destroyers slightly damaged in offshore action of storm, but there was no official confirmation, and this damage not included in amounts listed above.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

OCTOBER 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
WYOMING Big Horn Mountains eastward to South Dakota line	20	Day- evening					5	4	Snow and wind	Snow and wind localized in area described and in southeastern Montana because of terrain effects. Storm moved southeastward.
NEBRASKA Cheyenne County	20	Late forenoon					3	2	Wind	Dry cold front; gusts up to 63 m.p.h., at Sidney. Storm moved southward.
	20									Minor storm at New London, Iowa.
MONTANA Eastern counties	20-21	Noon 20th- 9 a.m. 21st	220	*100	4		5	4	Wind, snow, and ice	Snow, driven by very strong winds at temperatures near or a little below freezing. About 3,000 power- and telephone poles felled in southeast, with rime on wires reaching as much as 10 inches in diameter in area south of Forsyth and Miles City. Most damage concentrated in 3,000 square mile area from Volborg to south of Broadus. 4 hunters killed, 3 directly by effects of storm, the other ruled suicide in face of being lost in blizzard conditions. 1,000 sheep killed in Carter County; some livestock losses scattered over entire storm area. Some livestock electrocuted by fallen powerlines. Some drifts reached 10 feet deep in center of heaviest snowfall. In northeast, wind speeds up to 85 m.p.h., measured in gusts at Glasgow Air Force Base and Wolf Point Airport, with structural damage scattered over wide area. Severe summer fallow soil erosion from east of Glasgow to North Dakota border. Much of southeast without power or telephone services for week or more following storm. Hundreds of hunters and travelers marooned a day or more in Broadus area. 3.60 inches of precipitation for storm at Colstrip. Storm moved southeastward. Snow and ice damage \$173,900; wind damage \$48,500.
SOUTH DAKOTA Northern Black Hills	20-21	2 p.m. 20th- 11 a.m. 21st							Snow and wind	Heavy snow accompanied by poor visibility. Traffic stopped by falls of up to 18 inches. Most snow thawed quickly in days that followed.
TEXAS Gainesville, Cooke County	21	1 p.m.			1				Electrical	During brief thunderstorm, workman killed by lightning.
IOWA New London, Henry County	21	4:55 p.m.					4	1	Electrical	Destroyed large barn and contents.
TEXAS Mineral Wells (55 miles southeast of), Johnson County	21	5:25 p.m.			0	0			Funnel aloft	
CALIFORNIA Ventura and Los Angeles Counties	21						3		Wind	Strong winds in foothills, with gusts reported reaching 50 m.p.h., fanned 2 fast-moving brush fires; one in Ventura County between Moorpark and Fillmore, the other 30 miles north of Los Angeles. About 16,000 acres burned; cabin destroyed; 16 persons evacuated from rest home.
TEXAS Granbury, Hood County	21						3		Hail	Hens' egg sized hail smashed many automobile windows and damaged paint.
	21									Minor storm also reported at New Vienna, Iowa.
VIRGINIA Hampton Roads	21-22								Extra-tropical coastal storm	Extra-tropical coastal storm commenced deepening south of Hatteras during evening of 19th. It moved northeastward, affecting coastal Virginia northward to Hampton Roads area. In Hampton Roads Harbor, highest tide crested, on 21st, at 3.6 feet above normal or 6.6 feet above mean low water mark. This caused considerable flooding of low-lying areas and flooding of many streets in downtown Norfolk. Actual damage by water not great. Many downtown business places closed during early afternoon and this tended to alleviate traffic congestion during highest water. Costs of this storm to Hampton Roads area almost wholly due to flooding with wind damage negligible. Strongest winds along coast were in area about halfway between Norfolk and Hatteras. Sustained northeast winds of 45 to 50 m.p.h., with gusts to 70 observed at Manteo and Nags Head shortly after midnight on 21st. Gale

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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					Killed	Injured	Property (exclusive of crops)	Crops		
VIRGINIA (Cont'd.)										winds recorded off and on at Norfolk Weather Bureau between 3:57 p.m., on 20th and 12:45 p.m., on 21st. Strongest gust observed was 53 m.p.h., from northeast at 2:04 a.m., on 21st. Rainfall during storm totaled 2.82 inches at Norfolk, with all but 0.01 inch occurring on 21st.
NORTH DAKOTA Cass County	22	1:36 p.m.			0	0			Funnel aloft	Pilot reported funnel aloft moving north-north-eastward.
CALIFORNIA Point Loma, San Diego County	24	Morning			0	0	1	1	Waterspouts	Well developed waterspout off Point Loma observed for about 8 minutes; dissipated over water. USS Thetis Bay observed 7 separate waterspouts same morning in offshore operating area.
CALIFORNIA Southern portion	24-25						3		Rain, and hail	Low pressure system aloft over southern California caused widespread thunderstorms, locally heavy rain, and scattered hail. Damage heaviest over mountains and desert regions, but heavy rain in Torrance and Seal Beach areas flooded several roads. Washout occurred on Solamint Canyon road in San Gabriel Mountains, and a few mud slides occurred near Camp Angelus. At Barstow, water ran curb high in downtown streets, with some damage to stores and several homes. At Parker Reservoir, near Arizona border, hailstones up to 1/2 inch in diameter fell, and heavy rain caused many rock slides along highway.
UTAH Weber, Davis, and Salt Lake Counties	25	A.m.							Wind	2 plate-glass windows blown in at Ogden; tree limbs across lines caused numerous power failures.
TEXAS Between Acala and Ft. Hancock, El Paso and Hudspeth Counties	25	3:30-4 p.m.						4	Hail	Scattered hail damaged cotton. 30 percent of ground covered by hail. Storm moved northeastward.
TEXAS Corpus Christi (4 miles west of), Nueces County	25				0	0			Funnel aloft	
CONNECTICUT New Haven County	25-27	A.m. 25th- a.m. 27th							Rain and electrical	Heavy rain, totaling 2.50 to 3.00 inches in less than 48 hours, caused extensive street flooding in southwestern sections of metropolitan New Haven area. Worst affected were shoreline streets in West Haven and Milford, where tides 2 to 3 feet above normal and overflow from 2 small streams flooded nearby streets and park areas to depth of foot or more. Some lightning accompanied storm on 26th. At Ansonia, woman had metal spoon knocked from her hand, but otherwise uninjured as bolt came through open door at rear of house. Bolt also struck West Haven fire station, temporarily knocking out fire alarm system.
MASSACHUSETTS, NEW HAMPSHIRE, and MAINE	26				2	Many	5	1	Rain, wind, and snow	Heavy rain and high wind reached damaging proportions on this fourth day of northeast storm. The Massachusetts and New Hampshire coastlines battered by storm tides 2 to 3 feet above normal. Some seawalls overtaxed and coastal streets flooded. Many boats damaged at Marblehead and some at Quincy, Mass. Wind damaged some cottages at Hampton Beach, N. H. Heavy rains over most of area caused minor local street flooding and hampered traffic. Several fatalities and many injuries from automobile accidents attributed to storm. Some snow fell in higher elevations, adding to highway difficulties. Wind felled trees and broke powerlines in several communities.
CALIFORNIA Los Angeles, San Bernardino, and Riverside Counties	27 29-30						2		Wind	Minor storm reported at Silver City, N. Mex. Strong gusty winds blowing through mountain passes, blew branches from trees, downed a few power lines and television antennas in foothill communities. Winds fanned 300-acre brush fire west of Etiwanda, and smaller fire near Azusa. Winds to 69 m.p.h., reported on 29th at Fontana.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

OCTOBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
FLORIDA Palmetto, Manatee County	31	1:30 p.m.	3	200	0	4	5		Tornado	Several buildings damaged, some severely. 1 building, newly finished resort motel, estimated to have been 80 percent destroyed. Total storm damage around \$250 thousand. Storm moved eastward.

DELAYED REPORTS

KANSAS Barton County	Sept.									
	20	9:30-11 p.m.					4		Rain and electrical	Much flooding of basements and stranding of automobiles from sudden downpour of almost 3 inches of rain. Lightning struck power substation, causing disruption of service over wide area and loss of equipment.

* Miles instead of yards.

** Yards instead of miles.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

OCTOBER 1958

The most important flooding during October was on the Rio Grande below Falcon Reservoir. Flooding was the most extensive on the Mexican side. Considerable amount of farmland was flooded on the American side from Rio Grande City to above Mission, Tex. The small villages of Abrams and Los Ebanos were flooded and had to be evacuated. Flooding reported elsewhere was minor.

ATLANTIC SLOPE DRAINAGE

The minor flooding on the Raritan on the 26th and on the Millstone and Passaic in New Jersey on the 26th and 27th was due to heavy rainfall from the 23d to the 27th. The Wanaque and Boonton Reservoirs were low enough to contain all runoff from these storms so there was no threat of flood for the lower Passaic River.

EAST GULF OF MEXICO DRAINAGE

The heavy rains on September 30 caused light flooding on the Pearl River at Jackson, Miss., and Bogalusa, La., during the early part of October. Only slight damage occurred as flooding was confined to low natural pastures and forested lands.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The monthly mean stage of the Minnesota River at Mankato, Minn. was 4.4 feet, 1.5 feet below the longterm mean. This is the lowest monthly October mean stage since 1921 when a monthly mean stage of 1.2 feet was recorded. At Fort Ripley, Minn., on the Mississippi River, the monthly mean October stage was 3.4 feet, 1.0 foot below the longterm mean. At Minneapolis, Minn., the Mississippi averaged 4.4 feet, the lowest monthly October mean stage since the gage was established in 1938. From St. Paul, Minn., downstream to Guttenberg, Iowa, the Mississippi maintained normal channel elevations. In Wisconsin, the Mississippi River tributaries averaged near 0.5 foot below the longterm mean.

Missouri Basin.--The light flooding on the Kansas River tributaries were due to locally heavy rains. Dragoon Creek on the upper Marais des Cygnes rose to the highest levels in years following rainfall of up to 4 inches at Harveyville. Minor losses occurred in Geary County on the Clarke and Humbolt Creeks and on Dragoon Creek in the upper Marais des Cygnes basin.

Lower Mississippi Basin.--The flooding on the Yazoo River at Yazoo City, Miss., from September 26 to October 10 was due to heavy rain from September 19 to 21. Moderate agricultural flooding occurred along the lower portion.

WEST GULF OF MEXICO DRAINAGE

The Calcasieu River receded within its banks on October 1. The Sabine River remained in flood at Bon Wier, Tex., until the 4th and at Deweyville, Tex., until the 8th. A complete report of this flooding is given in the previous month's issue.

Flooding continued on the Trinity River at Liberty, Tex., from September 22 until October 2 from the excessive rains between September 16 and 23. There was no appreciable damage from the overflow at Liberty, Tex.

Rainfall was plentiful over the Nueces River basin during October. Heavy flooding was confined to small areas with minor flooding on the Nueces below Cotulla, to near Three Rivers, Tex., most of the month. Water flowed over Wesley Seale Dam, causing minor flooding from the dam to Calallen from the 1st to the 14th and again on the 30th and 31st. Flooding on the Frio River continued at Calliham, Tex., from September 26 to October 3. Flooding along the rivers and creeks was confined mainly to pastureland, with some 10,000 acres of ranch land being flooded, but with only minor damage reported. Streets and highways sustained the greater part of the damage as a result of continued rains.

Major flooding occurred on the Rio Grande below Falcon Reservoir and minor flooding above the Reservoir at Eagle Pass, Tex., during October. This was not a record flood; however, it was unique in that it was the first flood since the completion of Falcon Dam. Flooding was most extensive on the Mexican side and occurred first from Hidalgo to above Brownsville, Tex., during the early part of the month. When flood conditions threatened the Brownsville-Matamoros area, the levees on the Mexican side were cut at several places between Matamoros and Reynosa. This not only cut the Matamoros-Reynosa highway and flooded large areas of farming and grazing land in Mexico, but also flooded several Mexican villages. On the American side, in the reach from Hidalgo to above Brownsville, the flood was contained by the levee system. Damage to crops on the river side of the levees, however, was very heavy. Considerable amounts of farmland were flooded on the American side from Rio Grande City to above Mission, Tex. There are no levees along this reach of the river, and the small villages of Abrams and Los Ebanos were flooded and had to be evacuated. There was considerable flooding along this reach on the Mexican side and the villages of Camargo and Mier were partially flooded and evacuated. At this time considerable amounts of water was being diverted by the American Floodway System and continued through the remainder of the month. There was considerable damage to crops, especially winter vegetables from local flooding. This, together with the fact that September was also a wet month, prevented preparation of soil and planting of winter vegetables. Considerable damage was suffered at Port Harlingen where the docks were covered and the warehouses were several feet deep with water, and at a few places in the Harlingen area where structures were built considerably below the level that water could be expected to reach whenever water passes through the floodway.

FLOOD STAGE DATA

(All dates in October unless otherwise specified)

OCTOBER 1958

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE		<i>Ft.</i>		<i>Ft.</i>	
Millstone Blackwells Mills, N. J.	7	26	27	7.55	26
Raritan Manville, N. J.	12	26	26	12.5	26
Bound Brook, N. J.	8	26	26	8.1	26
Passaic Summit-Chatham, N. J.	6	26	26	6.0	26
		27	27	6.0	27
EAST GULF OF MEXICO DRAINAGE					
Pearl: Jackson, Miss.	18	1	1	18.4	1
		4	5	18.1	5
Bogalusa, La.	15	6	7	15.2	7
MISSISSIPPI SYSTEM					
<u>Missouri Basin</u>					
Mill Creek: Paxico, Kans.	19	7	7	24.55	7
Soldier Creek: Topeka, Kans.	25	7	7	26.0	7
Wakarusa: Lawrence, Kans.	23	8	8	25.55	8
<u>Lower Mississippi Basin</u>					
Yazoo: Yazoo City, Miss.	29	Sept. 26	10	30.1	1
WEST GULF OF MEXICO DRAINAGE					
Calcasieu: Old Town Bay, La.	4	Sept. 22	1	7.9	Sept. 25
Sabine: Bon Wier, Tex.	17	Sept. 22	4	19.4	Sept. 24
Deweyville, Tex.	14	Sept. 22	8	15.6	Sept. 25

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
WEST GULF OF MEXICO DRAINAGE (Cont'd.) <i>Ft.</i>					
Trinity: Liberty, Tex.	24	Sept. 22	2	25.5	Sept. 25
Frio: Caliham, Tex.	12	Sept. 26	3	18.1	■
Atascosa: Whitsett, Tex.	20	30	31	23.4	31
Nueces: Tilden, Tex.	11	Sept. 24	<u>1</u> /	19.2 15.0	3 23
Wesley Seale Dam, Tex.	88	1	<u>1</u> /	89.7	7
Calallen, Tex.	7		14 <u>1</u> /	8.7	11
Rio Grande: Presidio, Tex.	10	Sept. 23	<u>1</u> /	21.3	Sept. 28
Eagle Pass, Tex.	16	Sept. 29	2 9	20.1 17.5	Sept. 29 8
Rio Grande City, Tex.	21	13	29	28.7	18
Mercedes, Tex.	21	2	31	22.7	22-25
Brownsville, Tex.	18	13	13	18.0	13

* Provisional
1/ Continued at end of month

RAWINSONDE DATA

Average monthly values

OCTOBER 1958

ALBANY, N. Y. (1007 MB.)											ALBUQUERQUE, N. MEX. (841 MB.)											AMARILLO, TEX. (895 MB.)											ANCHORAGE, ALASKA (998 MB.)											ANNETTE, ALASKA (1006 MB.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
SURFACE	31	86	5.1	89	251	2.1	31	1,619	9.1	66	56	3.8	31	1,095	9.0	73	214	2.5	31	30	-2.1	65	33	4.0	31	37	8.0	86	149	8.7	31	15	1.3	56	17	6.4	31	506	5.9	81	182	9.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
1,000-	31	146		73	243	2.3	31	1,199					31	1,688					31	130			33	4.0	31	88																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
950-	31	567	6.6	70	282	6.0	31	589					31	596					31	421	-1.3	56	17	6.4	31	506	5.9	81	182	9.3	31	130																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
900-	31	1,009	4.8	70	302	8.9	31	1,051					31	1,053					31	854	-2.9	59	23	4.2	31	951	3.1	79	200	11.8	31	1,305	-5.3	64	23	2.1	31	1,413	8	77	217	13.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
850-	31	1,475	3.7	61	294	12.2	31	1,533					31	1,530	12.3	52	245	5.8	31	1,779	-7.8	66	112	1.1	31	1,898	-1.8	72	233	14.9	31	2,279	-10.2	63	13	2.1	31	2,411	-4.8	67	250	19.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
800-	31	1,968	2.5	56	283	15.2	31	1,583	10.1	54	180	5	31	1,586	6.9	48	233	8.8	31	2,279	-10.2	63	13	2.1	31	2,411	-4.8	67	250	19.0	31	2,757	-12.8	60	185	4.0	30	2,958	-7.9	64	250	18.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
750-	31	2,487		54	285	15.1	31	2,572	7.4	53	283	3.3	31	2,565	6.9	48	233	8.8	31	2,757	-12.8	60	185	4.0	30	2,958	-7.9	64	250	18.6	31	3,135	-4.3	43	243	5.2	31	3,364	-16.1	58	198	4.4	30	3,523	-11.2	56	240	19.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
700-	31	3,040	-2.1	52	285	19.8	31	3,140	4.2	52	316	3.3	31	3,135	4.3	43	243	5.2	31	3,364	-16.1	58	198	4.4	30	3,523	-11.2	56	240	19.6	31	3,624	-4.8	50	282	24.4	31	3,736	-3	51	313	3.6	31	3,730	-6	43	261	5.2	31	3,968	-20.1	57	206	7.5	30	4,142	-14.4	51	244	22.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
650-	31	4,253	-8.1	46	279	25.8	31	4,378	-3.3	40	296	4.6	31	4,373	-3	36	263	7.7	31	3,968	-20.1	57	206	7.5	30	4,142	-14.4	51	244	22.3	31	4,918	-12.2	42	279	30.5	31	5,056	-7.4	276	4.8	31	5,051	-7	30	5,271	-11.0	30	5,489	-16.8	39	277	30.3	31	5,799	-12.0	287	7.1	31	5,793	-12.2	272	11.0	31	5,296	-29.0	49	226	8.5	30	5,503	-22.8	53	248	25.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
600-	31	5,648	-16.8	39	277	30.3	31	5,799	-12.0					287	8.3	31	5,793	-12.2	272	11.0	31	5,296	-29.0	49	226	8.5	30	5,503	-22.8	53	248	25.8	31	6,426	-22.2	36	280	35.2	31	6,592	-17.4	285	9.7	31	6,583	-18.0	268	14.5	31	6,033	-34.2	48	225	8.7	30	6,262	-28.4	53	248	25.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
550-	31	7,288	-28.2	35	283	35.1	31	7,471	-24.1					285	9.7	31	7,450	-24.1	272	19.8	31	6,927	-40.2	52	200	9.9	30	7,411	-4.8	67	250	19.0	31	8,233	-35.4	25	285	29.9	31	8,431	-31.4	272	11.8	30	8,421	-30.9	269	24.8	31	7,757	-45.8	203	11.6	29	8,027	-40.2	50	248	25.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
500-	31	8,291	-42.3		279	38.4	31	8,505	-39.3					273	16.3	30	8,497	-38.9	269	24.8	31	7,757	-45.8	203	11.6	29	8,027	-40.2	50	248	25.8	31	9,233	-42.3		279	38.4	31	9,505	-39.3	273	16.3	30	9,497	-38.9	269	24.8	31	8,770	-51.5	205	17.2	29	9,065	-46.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

RAWINSONDE DATA

Average monthly values

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CHARLESTON, S. C. (1017 MB.)										COLD BAY, ALASKA (1001 MB.)										COLUMBIA, MO. (992 MB.)										DENVER, COLO. (841 MB.)										DAYTON, OHIO (984 MB.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
SURFACE	31	13	12.4	93	338	4.8	31	27	4	86	267	4.8	31	238	9.0	83	191	2.1	31	1,611	4.7	59	223	2.3	31	297	7.5	80	287	1.3	31	297	7.5	80	287	1.3	31	297	7.5	80	287	1.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
1,000---	31	153	15.5	77	357	7.3	31	32			268	7.3	31	169					31	1,755					31	163					31	163					31	163					31	163																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									</

RAWINSONDE DATA

Average monthly values

OCTOBER 1958

GREENSBORO, N. C. (987 MB.)										HILO, T. H. (1014 MB.)										INTERNAT. FALLS, MINN. (972 MB.)										JACKSON, MISS. (1007 MB.)										JACKSONVILLE, FLA. (1017 MB.)											
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind	
SURFACE	31	273	8.4	89	2	3.8	31	11	21.3	88	249	2.9	31	360	3.9	81	200	1.1	31	101	12.5	87	42	1.9	31	6	16.2	92	352	6.4																					
1,000---	31	167					31	131	22.7	80	266	2.1	31	124			273	5.8	31	164	14.1	79	55	2.9	31	153	17.9	78	5	7.9																					
950----	31	596	12.2	66	356	9.1	31	581	19.9	82	53	4.0	31	544	5.6	71	262	1.5	31	600	15.4	61	70	5.8	31	590	17.1	73	26	9.3																					
900----	31	1,048	10.7	60	343	7.7	31	1,042	16.7	85	57	6.9	31	986	5.2	66	273	5.8	31	1,058	14.1	57	35	3.1	31	1,054	14.9	71	25	5.8																					
850----	31	1,524	10.0	53	319	6.9	31	1,528	13.9	85	49	6.8	31	1,452	4.3	55	287	8.1	31	1,539	12.4	50	30	3.1	31	1,536	12.9	63	360	4.6																					
800----	31	2,027	8.0	52	299	7.9	31	2,039	11.7	78	54	5.0	31	1,944	2.1	52	291	10.6	31	2,045	10.2	50	317	5.0	31	2,044	11.2	52	338	4.2																					
750----	31	2,557	5.5	51	283	11.0	31	2,581	10.2	62	41	3.8	31	2,460	- .3	49	294	13.7	31	2,580	7.6	48	312	7.5	50	2,578	8.9	46	324	5.2																					
700----	31	3,119	2.4	46	279	12.8	31	3,151	8.8	36	66	1.9	31	3,012	- 3.5	52	285	16.5	31	3,146	5.1	42	298	8.5	31	3,150	6.0	48	294	7.1																					
650----	31	3,712	- .6	41	283	15.3	31	3,760	6.1	33	3	1.3	31	3,592	- 6.8	50	285	17.4	31	3,743	1.8	45	287	11.2	31	3,747	2.9	47	282	8.3																					
600----	31	4,352	- 4.2	41	275	18.4	31	4,413	2.6		322	1.9	31	4,216	-10.2	48	289	20.4	31	4,389	- 1.5	44	278	14.5	31	4,400	- .2	41	280	11.8																					
550----	31	5,026	- 4.4	38	277	22.7	31	5,107	- 1.5		281	2.7	31	4,878	-14.2	18	289	22.9	31	5,071	- 5.6	41	278	18.0	31	5,082	- 4.5	42	283	14.1																					
500----	31	5,767	-13.0		278	25.8	31	5,865	- 6.4		284	3.8	31	5,599	-19.1	44	285	23.7	31	5,818	-10.3	41	275	25.2	31	5,837	- 9.1	40	279	17.2																					
450----	31	6,557	-18.1		275	27.5	31	6,675	-12.1	33	274	5.9	31	6,368	-24.4	38	283	24.6	31	6,615	-15.7	37	274	30.5	31	6,834	-14.7	40	284	20.2																					
400----	31	7,434	-24.1		271	29.7	31	7,572	-18.5	34	274	5.8	31	7,226	-30.6	39	284	26.0	31	7,501	-21.2	37	275	36.5	31	7,535	-20.4	38	282	24.6																					
350----	31	8,395	-31.2		267	28.1	31	8,555	-25.6	35	272	12.2	31	8,162	-37.3		286	30.5	31	8,474	-28.0	40	273	44.1	31	8,506	-27.2		285	29.1																					
300----	31	9,470	-39.1		265	28.9	31	9,655	-33.9		270	18.8	31	9,210	-44.8		289	30.5	31	9,564	-35.7		273	51.1	31	9,599	-35.2		288	33.6																					
250----	31	10,698	-47.0		269	34.3	31	10,905	-44.2		265	24.8	31	10,411	-51.5		293	34.0	31	10,808	-44.8		276	61.5	31	10,844	-44.5		284	37.6																					
200----	31	12,151	-54.1		269	37.4	31	12,365	-55.8		263	31.4	31	11,846	-54.8		293	36.7	31	12,268	-54.7		279	63.7	31	12,306	-54.4		287	41.5																					
175----	31	13,002	-57.5		273	38.0	31	13,204	-61.7		264	35.9	31	12,700	-54.9		288	38.6	31	13,111	-59.5		279	61.5	31	13,156	-59.3		286	42.7																					
150----	31	13,966	-61.1		280	36.9	31	14,147	-67.1		266	32.0	31	13,685	-55.1		292	37.3	31	14,066	-63.8		279	53.0	31	14,111	-64.1		286	37.1																					
125----	31	15,020	-64.2		293	32.9	31	15,234	-71.6		263	22.9	31	14,726	-56.1		292	33.4	31	15,175	-67.6		283	38.2	31	15,220	-67.8		292	37.5																					
100----	31	16,451	-65.5		273	20.5	31	16,542	-73.7		261	11.4	31	16,265	-56.7		284	26.8	31	16,512	-69.0		281	26.2	31	16,558	-69.3		291	19.4																					
75----	31	17,814	-63.3		269	13.4	31	17,846	-72.7		79	3.1	31	17,677	-57.0		288	23.7	31	17,850	-67.5		292	13.7	26	17,893	-67.6		294	11.8																					
60----	31	19,601	-58.9		271	8.7	31	19,566	-65.8		95	15.1	31	19,501	-56.6		294	18.0	31	19,606	-61.7		268	5.2	24	19,650	-62.5		204	.3																					
45----	31	20,752	-55.9		253	6.4	31	20,683	-62.5		90	18.6	31	20,663	-62.5		295	16.3	31	20,744	-58.5		253	2.7	23	20,787	-59.3		33	2.5																					
30----	31	22,175	-54.6		279	3.6	31	22,071	-59.2		87	24.0	31	22,083	-55.8		295	13.4	31	22,156	-55.4		278	1.7	23	22,198	-56.0		87	5.8																					
15----	31	24,020	-52.6		71	.7	31	23,890	-55.5		87	29.5	31	23,915	-55.2		290	13.6	31	24,003	-52.8		166	1.5	21	24,034	-53.2		85	1.4																					
10----	31	25,194	-51.7				27	25,064	-52.9		88	32.4	31	25,082	-54.4		297	13.6	31	25,183	-51.1		90	.9	17	25,208	-51.9		47	4.6																					
5----	31	26,637	-50.6				24	26,514	-50.7		89	32.4	31	26,507	-53.6		291	13.9	31	26,642	-49.0		27	18.5	31	26,685	-47.0																								
0----	31						19	28,411	-48.9		91	30.6	31	28,411	-48.2		17	31	231	-44.3		277	.9																												

KING SALMON, ALASKA (1002 MB.)										KOTZEBUE, ALASKA (1008 MB.)										LAKE CHARLES, LA. (1017 MB.)										LANDER, WYO (832 MB.)										LAS VEGAS, NEV. (940 MB.)													
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind			
SURFACE	31	15	- 1.6	78	32	2.7	31	6	- 8.4	71	27	4.6	31	17.4	84	41	5.8	31	1,696	4.0	55	227	1.9	31	660	15.9	35	290	2.7																								
1,000---	31	28			313	3.8	31	64			61	4.6	31	153	18.1	75	62	8.9	31	175			31	124																													
950----	31	438	- 1.0	70	27	4.4	31	460	- 7.4	67	65	4.0	31	592	17.3	65	87	8.7	31	596			31	570																													
900----	31	869	- 2.8	65	2	2.9	31	884	- 9.2	67	53	1.1	31	831	14.3	66	92	8.4	31	1,045			31	1,011																													
850----	31	1,320	- 2.6	64	328	3	31	1,325	-11.0	67	328	9	31	1,539	14.3	66	11	1.1	31	1,534			31	1,521																													
800----	31	1,794	- 7.4	57	316	5.6	31	1,789	-12.6	66	279	2.5	31	2,050	12.1	52	303	2.5	31	2,023	9.2	33	268	1.3	31	2,035	13.6	30	39	5.0																							
750----	31	2,295	-10.0	53	304	7.3	31	2,276	-14.9	60	281	3.4	31	2,587	9.4	51	317	4.2	31	2,552	6.9	31	283	5.8	31	2,569	9.4	34	60	2.5																							
700----	31	2,824	-12.9	51	300	6.4	31	2,800	-17.5	50	284	5.8	31	3,158	6.4	50	285	4.8	31	3,119	3.6	30	293	9.7	31	3,142	5.3	37	43	1.1																							
650----	31	3,383	-16.4	52	296	7.3	31	3,345	-20.6	47	282	7.3	31	3,759	3.4	47	280	8.7	31	3,710	- .2	30	298	13.7	31	3,740	1.8	33	352	1.1																							
600----	31	3,984	-19.8	50	289	8.1	31	3,940	-24.1	44	282	9.1	31	4,410	- .0	44	271	12.4	31	4,352	- 4.3	28	299	17.4	31	4,385	- 1.9		357	2.5																							
550----	31	4,620	-23.7	41	282	7.9	31	4,561	-28.0	39	271	8.9	31	5,095	- 3.8	44	261	14.5	31	5,025	- 8.6		298	19.2	31	5,065	- 6.5		353	5.2																							
500----	31	5,355	-28.5	31	278	10.1	31	5,249	-32.4	39	273	11.6	31	5,859	-8.2	42	262	18.8	31	5,764	-10.4		298	18.6	31	5,809	-11.14		382	7.5																							
450----	31	6,053	-34.6		274	11.1	31	5,978	-37.8	39	267	13.0	31	6,521	-12.3	39	265	25.0	31	6,447	-19.8		300	19.8	31	6,500	-17.8		323	10.1																							
400----	31	6,880	-39.4		271	15.3	31	6,790	-42.7	34	264	10.6	31	7,546	-19.4	41	267	31.6	31	7,419	-26.3		310	15.9	31	7,478	-24.4		329	11.2																							
350----	31	7,783	-45.2		276	16.3	31	7,679	-48.7		265	14.3	31	8,526	-26.0	4																																					

RAWINSONDE DATA

Average monthly values

OCTOBER 1958

MONTGOMERY, ALA. (1012 MB.)										NANTUCKET, MASS. (1016 MB.)										NASHVILLE, TENN (1000 MB.)										N. Y. INT. AP. IDLEWILD (1017 MB.)										NOME, ALASKA (1006 MB.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
SURFACE	29	61	13.6	87	50	1.9	31	14	10.3	92	12	3.4	31	177	9.6	90	265	1.1	31	5	10.6	80	336	4.2	31	7	-4.0	81	46	4.4	31	148	9.9	75	347	5.8	31	55	-4.2	74	29	2.9	31	460	-4.2	74	29	2.9	31	885	-6.9	77	336	2.5	31	1,330	-9.0	78	307	4.4	31	1,798	-10.6	75	297	4.6	31	2,288	-12.6	65	289	14.7	31	2,818	-15.4	68	282	9.1	31	3,366	-18.3	67	295	11.2	31	3,968	-21.8	63	293	12.4	31	4,595	-26.0	293	14.1	31	5,288	-30.8	294	15.5	31	6,020	-35.7	292	13.2	31	6,840	-41.3	291	12.6	31	7,735	-47.2	291	13.6	31	8,742	-53.0	291	14.7	31	9,909	-55.1	259	14.1	31	11,345	-51.7	259	18.2	31	12,215	-50.6	260	16.3	31	13,222	-49.8	266	19.2	31	14,415	-49.9	259	20.9	31	15,875	-49.9	256	22.7	31	17,335	-50.2	255	23.7	31	18,954	-50.7	257	25.6	31	20,712	-55.1	242	20.1	31	22,742	-53.4	242	20.1	31	24,984	-51.9	242	20.1	31	27,460	-53.2	242	20.1	31	30,133	-51.3	242	20.1	31	32,952	-49.6	242	20.1	31	35,918	-48.4	242	20.1	31	38,931	-46.6	242	20.1	31	42,081	-44.4	242	20.1	31	45,366	-42.4	242	20.1	31	48,786	-40.4	242	20.1	31	52,341	-38.4	242	20.1	31	56,031	-36.4	242	20.1	31	59,856	-34.4	242	20.1	31	63,816	-32.4	242	20.1	31	67,911	-30.4	242	20.1	31	72,141	-28.4	242	20.1	31	76,506	-26.4	242	20.1	31	81,006	-24.4	242	20.1	31	85,641	-22.4	242	20.1	31	90,406	-20.4	242	20.1	31	95,301	-18.4	242	20.1	31	100,326	-16.4	242	20.1	31	105,481	-14.4	242	20.1	31	110,766	-12.4	242	20.1	31	116,181	-10.4	242	20.1	31	121,726	-8.4	242	20.1	31	127,401	-6.4	242	20.1	31	133,206	-4.4	242	20.1	31	139,141	-2.4	242	20.1	31	145,206	-0.4	242	20.1	31	151,401	1.6	242	20.1	31	157,726	3.6	242	20.1	31	164,181	5.6	242	20.1	31	170,766	7.6	242	20.1	31	177,481	9.6	242	20.1	31	184,326	11.6	242	20.1	31	191,401	13.6	242	20.1	31	198,616	15.6	242	20.1	31	205,961	17.6	242	20.1	31	213,436	19.6	242	20.1	31	221,041	21.6	242	20.1	31	228,776	23.6	242	20.1	31	236,641	25.6	242	20.1	31	244,636	27.6	242	20.1	31	252,751	29.6	242	20.1	31	260,986	31.6	242	20.1	31	269,341	33.6	242	20.1	31	277,816	35.6	242	20.1	31	286,401	37.6	242	20.1	31	295,096	39.6	242	20.1	31	303,901	41.6	242	20.1	31	312,816	43.6	242	20.1	31	321,841	45.6	242	20.1	31	330,986	47.6	242	20.1	31	340,251	49.6	242	20.1	31	349,636	51.6	242	20.1	31	359,141	53.6	242	20.1	31	368,766	55.6	242	20.1	31	378,511	57.6	242	20.1	31	388,376	59.6	242	20.1	31	398,361	61.6	242	20.1	31	408,466	63.6	242	20.1	31	418,691	65.6	242	20.1	31	429,036	67.6	242	20.1	31	439,501	69.6	242	20.1	31	450,086	71.6	242	20.1	31	460,791	73.6	242	20.1	31	471,616	75.6	242	20.1	31	482,561	77.6	242	20.1	31	493,626	79.6	242	20.1	31	504,811	81.6	242	20.1	31	516,116	83.6	242	20.1	31	527,541	85.6	242	20.1	31	539,086	87.6	242	20.1	31	550,751	89.6	242	20.1	31	562,536	91.6	242	20.1	31	574,441	93.6	242	20.1	31	586,466	95.6	242	20.1	31	598,611	97.6	242	20.1	31	610,886	99.6	242	20.1	31	623,291	101.6	242	20.1	31	635,826	103.6	242	20.1	31	648,491	105.6	242	20.1	31	661,286	107.6	242	20.1	31	674,211	109.6	242	20.1	31	687,266	111.6	242	20.1	31	700,451	113.6	242	20.1	31	713,766	115.6	242	20.1	31	727,201	117.6	242	20.1	31	740,766	119.6	242	20.1	31	754,451	121.6	242	20.1	31	768,266	123.6	242	20.1	31	782,201	125.6	242	20.1	31	796,266	127.6	242	20.1	31	810,451	129.6	242	20.1	31	824,766	131.6	242	20.1	31	839,201	133.6	242	20.1	31	853,766	135.6	242	20.1	31	868,451	137.6	242	20.1	31	883,266	139.6	242	20.1	31	898,201	141.6	242	20.1	31	913,266	143.6	242	20.1	31	928,451	145.6	242	20.1	31	943,766	147.6	242	20.1	31	959,201	149.6	242	20.1	31	974,766	151.6	242	20.1	31	990,451	153.6	242	20.1	31	1006,266	155.6	242	20.1	31	1022,201	157.6	242	20.1	31	1038,266	159.6	242	20.1	31	1054,451	161.6	242	20.1	31	1070,766	163.6	242	20.1	31	1087,201	165.6	242	20.1	31	1103,766	167.6	242	20.1	31	1120,451	169.6	242	20.1	31	1137,266	171.6	242	20.1	31	1154,201	173.6	242	20.1	31	1171,266	175.6	242	20.1	31	1188,451	177.6	242	20.1	31	1205,766	179.6	242	20.1	31	1223,201	181.6	242	20.1	31	1240,766	183.6	242	20.1	31	1258,451	185.6	242	20.1	31	1276,266	187.6	242	20.1	31	1294,201	189.6	242	20.1	31	1312,266	191.6	242	20.1	31	1330,451	193.6	242	20.1	31	1348,766	195.6	242	20.1	31	1367,201	197.6	242	20.1	31	1386,266	199.6	242	20.1	31	1405,451	201.6	242	20.1	31	1424,766	203.6	242	20.1	31	1444,201	205.6	242	20.1	31	1463,766	207.6	242	20.1	31	1483,451	209.6	242	20.1	31	1503,266	211.6	242	20.1	31	1523,201	213.6	242	20.1	31	1543,266	215.6	242	20.1	31	1563,451	217.6	242	20.1	31	1583,766	219.6	242	20.1	31	1604,201	221.6	242	20.1	31	1624,766	223.6	242	20.1	31	1645,201	225.6	242	20.1	31	1665,766	227.6	242	20.1	31	1686,451	229.6	242	20.1	31	1707,266	231.6	242	20.1	31	1728,201	233.6	242	20.1	31	1749,266	235.6	242	20.1	31	1770,451	237.6	242	20.1	31	1791,766	239.6	242	20.1	31	1813,201	241.6	242	20.1	31	1834,766	243.6	242	20.1	31	1856,201	245.6	242	20.1	31	1877,766	247.6	242	20.1	31	1899,451	249.6	242	20.1	31	1921,266	251.6	242	20.1	31	1943,201	253.6	242	20.1	31	1965,266	255.6	242	20.1	31	1987,451	257.6	242	20.1	31	2009,766	259.6	242	20.1	31	2032,201	261.6	242	20.1	31	2054,766	263.6	242	20.1	31	2077,201	265.6	242	20.1	31	2100,451	267.6	242	20.1	31	2123,766	269.6	242	20.1	31	2147,201	271.6	242	20.1	31	2170,766	273.6	242	20.1	31	2194,201	275.6	242	20.1	31	2218,266	277.6	242	20.1	31	2242,451	279.6	242	20.1	31	2266,766	281.6	242	20.1	31	2291,201	283.6	242	20.1	31	2315,766	285.6	242	20.1	31	2340,201	287.6	242	20.1	31	2365,451	289.6	242	20.1	31	2390,766	291.6	242	20.1	31	2416,201	293.6	242	20.1	31	2442,766	295.6	242	20.1	31	2468,201	297.6	242	20.1	31	2494,451	299.6	242	20.1	31	2520,766	301.6	242	20.1	31	2547,201	303.6	242	20.1	31	2574,766	305.6	242	20.1	31	2601,201	307.6	242	20.1	31	2628,451	309.6	242	20.1	31	2655,766	311.6	242	20.1	31	2683,201	313.6	242	20.1	31	2711,766	315.6	242	20.1	31	2740,201	317.6	242	20.1	31	2769,451	319.6	242	20.1	31	2799,766	321.6	242	20.1	31	2829,201	323.6	242	20.1	31	2859,766	325.6	242	20.1	31	2890,201	327.6	242	20.1	31	2920,451	329.6	242	20.1	31	2951,766	331.6	242	20.1	31	2982,201	333.6	242	20.1	31	3013,76	335.6	242	20.1	31	3044,201	337.6	242	20.1	31	3075,451	339.6	242	20.1	31	3106,766	341.6	242	20.1	31	3137,201	343.6	242	20.1	31	3168,451	345.6	242	20.1	31	3199,766	347.6	242	20.1	31	3230,201	349.6	242	20.1	31	3261,451	351.6	242	20.1	31	3292,766	353.6	242	20.1	31	3323,201	355.6	242	20.1	31	3354,451	357.6	242	20.1	31	3385,766	359.6	242	20.1	31

Average monthly values

OCTOBER 1958

See reference note at end of table

RAWINSONDE DATA

Average monthly values

OCTOBER 1958

WASHINGTON, D. C. (1009 MB.)										WINNEMUCCA, NEV. (871 MB.)										YAKUTAT, ALASKA (1002 MB.)									
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity		Wind		Number of observations	Dynamic height	Temperature	Relative humidity		Wind		Number of observations	Dynamic height	Temperature	Relative humidity		Wind									
				Direction	Speed	Direction	Speed				Direction	Speed	Direction	Speed															
SURFACE	31	88	10.2	82	341	1.5	31	1,310	1.5	51	124	2.7	31	12	3.5	88	112	4.8	88	112	4.8								
1,000	31	160	10.9	78	352	2.3	31	192			31	3.9	31	29			102	4.8		102	4.8								
950	31	587	10.1	69	329	8.9	31	614			31	3.9	31	448	3.6	76	106	6.4		106	6.4								
900	31	1,037	8.2	63	319	10.6	31	1,063			31		31	884		8	76	128	6.9		128	6.9							
850	31	1,509	7.0	55	302	12.4	31	1,531	12.6	35	94	3.1	31	1,341	- 1.9	75	141	7.5		141	7.5								
800	31	2,006	5.2	52	292	13.4	31	2,039	11.4	30	132	5	31	1,821	- 4.9	72	156	8.9		156	8.9								
750	31	2,531	2.9	54	288	15.5	31	2,567	8.1	32	251	3.8	31	2,323	- 8.0	70	159	6.8		159	6.8								
700	31	3,088	- 2	51	285	17.8	31	3,140	4.4	34	248	5.4	31	2,859	-11.4	65	158	9.3		158	9.3								
650	31	3,676	- 2.7	50	282	19.6	31	3,733	.8	31	255	8.5	31	3,419	-14.9	61	180	13.2		180	13.2								
600	31	4,311	- 6.2	43	282	22.3	31	4,377	- 3.0		272	9.5	31	4,026	-18.7	53	200	14.7		200	14.7								
550	31	4,980	-10.0	34	284	23.5	31	5,053	- 7.0		282	12.0	31	4,662	-23.0	51	205	11.6		205	11.6								
500	31	5,716	-14.8	32	279	27.9	31	5,798	-12.2		288	15.9	31	5,361	-27.4	48	228	10.6		228	10.6								
450	31	6,497	-20.3		277	32.6	31	6,584	-18.2		291	17.4	31	6,102	-33.2	46	244	9.7		244	9.7								
400	31	7,369	-26.6		273	36.1	31	7,464	-24.8		294	18.6	31	6,930	-38.7		288	8.3		288	8.3								
350	31	8,321	-33.3		267	42.7	31	8,420	-32.3		292	19.2	31	7,836	-44.3		293	16.1		293	16.1								
300	31	9,388	-40.7		264	47.0	31	9,489	-41.0		290	22.7	31	8,856	-50.0														
250	31	10,610	-48.0		262	47.0	31	10,704	-50.0		288	27.2	31	10,040	-52.2														
200	31	12,060	-54.4		265	46.2	31	12,138	-56.9		291	27.3	31	11,488	-50.6														
175	31	12,911	-56.8		267	42.3	31	12,979	-59.3		287	27.3	31	12,358	-50.7														
150	31	13,881	-59.6		271	40.2	31	13,941	-60.8		276	23.7	31	13,362	-50.9														
125	30	15,011	-62.1		271	36.3	31	15,071	-62.8		285	21.1	31	14,547	-51.9														
100	30	16,387	-62.6		272	25.8	27	16,443	-63.5		286	18.8	31	15,994	-51.3														
80	30	17,767	-61.6		272	18.0	27	17,817	-62.3		291	12.2	30	17,443	-51.7														
60	30	19,564	-58.1		272	12.8	27	19,603	-60.6		310	8.5	30	19,306	-53.1														
50	28	20,728	-56.1		268	10.6	27	20,742	-59.5		330	6.6	30	20,480	-53.2														
40	27	22,159	-54.1		258	6.6	27	22,141	-58.9		344	6.9	30	21,917	-53.9														
30	26	24,023	-51.5		269	4.6	25	23,955	-56.1		360	5.2	30	23,759	-54.9														
25	26	25,210	-50.4		304	4.0	24	25,120	-54.7		340	5.4	27	24,929	-54.9														
20	24	26,673	-49.2		316	4.4	8	26,538	-54.4				24	26,364	-54.9														
15	23	28,563	-47.7		317	5.2							20	28,181	-55.1														
10	8	31,320	-44.1										9	30,841	-54.6														

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 10 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been

computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

OCTOBER 1958

LINCOLN, NEBR.									
Sun's zenith distance									
Date	A M				*	P M			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
Air mass									
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Oct. 1	0.96	1.06	1.10	1.24	1.35	1.23	1.08	0.88	0.76
2	0.88	0.98	1.10	1.24	1.35	1.20	1.02	0.88	0.76
3	0.89	1.01	1.11	1.24	1.33	1.22	1.03	0.95	0.76
4	0.83	0.94	1.07	1.23	1.34	1.23	1.03	0.95	0.76
5	0.77	0.87	1.00	1.22	1.33	1.23	1.03	0.95	0.76
6	0.71	0.81	0.94	1.21	1.32	1.22	1.03	0.95	0.76
7	0.65	0.74	0.86	1.20	1.31	1.21	1.03	0.95	0.76
8	0.59	0.69	0.82	1.19	1.30	1.20	1.03	0.95	0.76
9	0.53	0.63	0.76	1.18	1.29	1.19	1.03	0.95	0.76
10	0.47	0.57	0.70	1.17	1.28	1.18	1.03	0.95	0.76
11	0.41	0.51	0.64	1.16	1.27	1.17	1.03	0.95	0.76
12	0.35	0.45	0.58	1.15	1.26	1.16	1.03	0.95	0.76
13	0.29	0.39	0.52	1.14	1.25	1.15	1.03	0.95	0.76
14	0.23	0.33	0.46	1.13	1.24	1.14	1.03	0.95	0.76
15	0.17	0.27	0.40	1.12	1.23	1.13	1.03	0.95	0.76
16	0.11	0.21	0.34	1.11	1.22	1.12	1.03	0.95	0.76
17	0.05	0.15	0.28	1.10	1.21	1.11	1.03	0.95	0.76
18	0.00	0.10	0.23	1.09	1.20	1.10	1.03	0.95	0.76
19	0.00	0.04	0.17	1.08	1.19	1.09	1.03	0.95	0.76
20	0.00	0.00	0.13	1.07	1.18	1.08	1.03	0.95	0.76
21	0.00	0.00	0.09	1.06	1.17	1.07	1.03	0.95	0.76
22	0.00	0.00	0.05	1.05	1.16	1.06	1.03	0.95	0.76
23	0.00	0.00	0.01	1.04	1.15	1.05	1.03	0.95	0.76
24	0.00	0.00	0.00	1.03	1.14	1.04	1.03	0.95	0.76
25	0.00	0.00	0.00	1.02	1.13	1.03	1.03	0.95	0.76
26	0.00	0.00	0.00	1.01	1.12	1.02	1.03	0.95	0.76
27	0.00	0.00	0.00	1.00	1.11	1.01	1.03	0.95	0.76
28	0.00	0.00	0.00	0.99	1.10	1.00	1.03	0.95	0.76
29	0.00	0.00	0.00	0.98	1.09	0.99	1.03	0.95	0.76
30	0.00	0.00	0.00	0.97	1.08	0.98	1.03	0.95	0.76
Aver-	0.82	0.94	1.06	1.21	1.30	1.19	1.03	0.89	0.77
ages									

ALBUQUERQUE, N. MEX.									
Sun's zenith distance									
Date	A M				*	P M			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
Air mass									
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Oct. 1	0.94	1.07	1.16	1.34	1.47	1.22	1.08	0.96	0.86
2	0.94	1.05	1.16	1.33	1.41	1.30	1.19	1.08	0.96
3	0.94	1.06	1.17	1.34	1.46	1.32	1.15	1.07	0.91
4	0.98	1.07	1.19	1.34	1.46	1.34	1.19	1.09	0.96
5	1.04	1.17	1.25	1.35	1.47	1.33	1.15	1.07	0.92
6	1.06	1.18	1.27	1.41	1.46	1.39	1.22	1.13	1.00
7	0.99	1.13	1.21	1.40	1.46	1.26	1.10	1.01	0.87
8	0.97	1.09	1.19	1.34	1.46	1.35	1.17	1.05	0.92
9	0.98	1.12	1.23	1.37	1.51	1.32	1.14	1.04	0.89
10	0.99	1.10	1.21	1.36	1.47	1.32	1.14	1.04	0.89
11	1.12	1.21	1.29	1.45	1.51	1.39	1.25	1.14	1.01
12	1.09	1.21	1.30	1.45	1.51	1.42	1.29	1.15	0.98
13	1.04	1.16	1.27	1.40	1.47	1.27	1.16	1.00	0.83
14	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
15	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
16	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
17	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
18	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
19	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
20	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
21	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
22	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
23	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
24	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
25	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
26	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
27	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
28	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
29	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
30	0.81	0.95	1.00	1.23	1.31	1.11	0.98	0.89	0.74
Aver-	0.98	1.10	1.21	1.36	1.45	1.33	1.15	1.05	0.92
ages									

MADISON, WIS.									
Sun's zenith distance									
Date	A M				*	P M			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
Air mass									
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Oct. 1	0.96	1.06	1.10	1.24	1.35	1.23	1.08	0.88	0.76
2	0.88	0.98	1.10	1.24	1.35	1.20	1.02	0.88	0.76
3	0.89	1.01	1.11	1.24	1.33	1.22	1.03	0.95	0.76
4	0.83	0.94	1.07	1.23	1.34	1.23	1.03	0.95	0.76
5	0.77	0.87	1.00	1.22	1.33	1.23	1.03	0.95	0.76
6	0.71	0.81	0.94	1.21	1.32	1.22	1.03	0.95	0.76
7	0.65	0.74	0.86	1.20	1.31	1.21	1.03	0.95	0.76
8	0.59	0.69	0.82	1.19	1.30	1.20	1.03	0.95	0.76
9	0.53	0.63	0.76	1.18	1.29	1.19	1.03	0.95	0.76
10	0.47	0.57	0.70	1.17	1.28	1.18	1.03	0.95	0.76
11	0.41	0.51	0.64	1.16	1.27	1.17	1.03	0.95	0.76
12	0.35	0.45	0.58	1.15	1.26	1.16	1.03	0.95	0.76
13	0.29	0.39	0.52	1.14	1.25	1.15	1.03	0.95	0.76
14	0.23	0.33	0.46	1.13	1.24	1.14	1.03	0.95	0.76
15	0.17	0.27	0.40	1.12	1.23	1.13	1.03	0.95	0.76
16	0.11	0.21	0.34	1.11	1.22	1.12	1.03	0.95	0.76
17	0.05	0.15	0.28	1.10	1.21	1.11	1.03	0.95	0.76
18	0.00	0.10	0.23	1.09	1.20	1.10	1.03	0.95	0.76
19	0.00	0.04	0.17	1.08	1.19	1.09	1.03	0.95	0.76
20	0.00	0.00	0.13	1.07	1.18	1.08	1.03	0.95	0.76
21	0.00	0.00	0.09	1.06	1.17	1.07	1.03	0.95	0.76
22	0.00	0.00	0.05	1.05	1.16	1.06	1.03	0.95	0.76
23	0.00	0.00	0.01	1.04	1.15	1.05	1.03	0.95	0.76
24	0.00	0.00	0.00	1.03	1.14	1.04	1.03	0.95	0.76
25	0.00	0.00	0.00	1.02	1.13	1.03	1.03	0.95	0.76
26	0.00	0.00	0.00	1.01	1.12	1.02	1.03	0.95	0.76
27	0.00	0.00	0.00	1.00	1.11	1.01	1.03	0.95	0.76
28	0.00	0.00	0.00	0.99	1.10	1.00	1.03	0.95	0.76
29	0.00	0.00	0.00	0.98	1.09	0.99	1.03	0.95	0.76
30	0.00	0.00	0.00	0.97	1.08	0.98	1.03	0.95	0.76
Aver-	0.92	1.00	1.11	1.27	1.34	1.28	1.08	0.94	0.82
ages									

WASHINGTON, D. C. (WBCO)									
Sun's zenith distance									
Date	A M				*	P M			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
Air mass									
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
Oct. 1	0.77	0.82	0.92	1.04	1.16	1.03	0.88	0.76	0.66
2	0.71	0.76	0.86	0.98	1.10	0.97	0.83	0.71	0.61
3	0.65	0.70	0.80	0.92	1.04	0.91	0.77	0.65	0.55
4	0.59	0.64	0.74	0.86	0.98	0.85	0.71	0.59	0.49
5	0.53	0.58	0.68	0.80	0.92	0.79	0.65	0.53	0.43
6	0.47	0.52	0.62	0.74	0.86	0.73	0.59	0.47	0.37
7	0.41	0.46	0.56	0.68	0.80	0.67	0.53	0.41	0.31
8	0.35	0.40	0.50	0.62	0.74	0.61	0.47	0.35	0.25
9	0.29	0.34	0.44	0.56	0.68	0.55	0.41	0.29	0.19
10	0.23	0.28	0.38	0.50	0.62	0.49	0.35	0.23	0.13
11	0.17	0.22	0.32	0.44	0.56	0.43	0.29	0.17	0.07
12	0.11	0.16	0.26	0.38	0.50	0.37	0.23	0.11	0.01
13	0.05	0.10	0.20	0.32	0.44	0.31	0.17	0.05	0.00
14	0.00	0.04	0.14	0.26	0.38	0.27	0.13	0.00	0.00
15	0.00	0.00	0.10	0.22	0.34	0.23	0.09	0.00	0.00
16	0.00	0.00	0.06	0.18	0.30	0.19	0.05	0.00	0.00
17	0.00	0.00	0.02	0.14	0.26	0.15</			

SOLAR RADIATION DATA

OCTOBER 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass., during the month

	Avg								Avg								Avg						
Date-----	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Langleys-----	35	---	260	433	367	537	521	376	373	336	452	---	558	276	538	422	313	427	373	545	560	269	214
Date-----	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13
Langleys-----	304	32	19	28	21	31	186	89	30	514	201	595	264	17	531	308	---	---	---	---	---	---	---

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass., during the month

	Avg								Avg								Avg						
Date-----	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Langleys-----	32	133	218	78	124	50	65	100	174	204	104	106	63	100	44	113	126	78	94	33	26	95	129
Date-----	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13
Langleys-----	110	26	18	35	15	37	133	53	34	70	---	30	96	14	33	46	---	---	---	---	---	---	---

Note Langley is the unit used to denote one gram calorie per square centimeter

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	*151	*0	*0	*215	271	243	257	254	245	243	192	205	229	221	206	211	190	138	*5	122	*-3	*63	*40	128	144	105	*-30	122	104	103	114	145

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	186	178	189	200	181	179	---	148	---	137	158	164	178	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Readings are omitted during precipitation periods.

The measurement is made with a Beckman and Whitley net exchange radiometer 6 feet above a plot of short grass. Temperature of the plate of the radiometer is estimated using air temperature measured in a standard shelter and empirically derived relationship between air temperature and plate temperature.

These data are of an experimental nature and are published as received from the University of Missouri at Columbia. The instrument with which they are measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

OCTOBER 1958

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's.

1958	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Georgia	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Itasca, N. Y.	Lake Charles, La.	Lander, Wyo.		
1-----	228	32	505	(400)	81	71	56	(388)	47	446	39	93	661	292	27	449	419	316	433	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 2-----	348	277	165	(410)	59	77	105	(366)	304	439	423	139	608	106	414	73	442	490	466	459	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 3-----	507	277	165	(410)	59	77	105	(366)	304	439	423	139	608	106	414	73	442	490	466	459	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 4-----	548	277	165	(410)	59	77	105	(366)	304	439	423	139	608	106	414	73	442	490	466	459	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 5-----	450	322	139	(390)	166	76	238	(422)	411	428	373	201	558	330	64	67	441	460	422	452	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 6-----	420	322	139	(390)	166	76	238	(422)	411	428	373	201	558	330	64	67	441	460	422	452	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 7-----	397	189	552	(261)	484	52	254	323	466	396	424	320	690	476	411	297	440	401	433	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 8-----	525	397	189	551	52	521	32	276	178	442	356	413	354	632	481	337	350	90	138	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Average-----	397	129	397	(319)	264	58	191	(345)	333	417	326	221	629	300	262	242	408	414	283	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 9-----	526	303	539	---	490	35	176	240	346	174	314	446	667	386	250	489	284	273	353	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 10-----	523	151	528	65	471	50	117	108	311	319	327	---	674	342	263	481	202	248	353	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 11-----	511	168	523	249	201	54	94	414	372	370	325	---	674	342	263	481	202	248	353	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 12-----	498	88	517	252	492	37	91	323	---	383	269	228	(675)	526	119	484	478	426	303	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 13-----	478	48	530	89	489	46	60	352	448	383	423	137	623	510	113	478	426	303	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187		
Oct. 14-----	398	75	519	275	481	42	33	361	253	317	353	232	638	420	233	450	363	335	368	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Average-----	472	158	525	182	442	46	87	308	358	331	318	239	(628)	489	184	470	264	356	307	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 15-----	504	52	469	297	355	44	137	327	289	361	260	---	636	443	349	432	360	381	142	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 16-----	502	39	446	300	378	---	154	347	349	362	222	---	636	443	349	432	360	381	142	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 17-----	483	32	274	---	339	64	108	339	307	315	279	---	636	443	349	432	360	381	142	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 18-----	484	34	58	---	239	26	166	287	290	312	262	---	636	443	349	432	360	381	142	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 19-----	490	123	483	---	341	23	176	328	293	123	235	---	636	443	349	432	360	381	142	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 20-----	---	---	1	472	---	366	49	136	200	231	231	---	636	443	349	432	360	381	142	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 21-----	---	---	20	496	284	417	63	---	209	213	368	203	470	574	284	120	---	336	84	404	396	254	455	436	119	370	434	297	416	252	71	414	328	383	445	381	
Average-----	493	43	385	---	353	45	146	292	310	285	292	---	647	295	204	263	350	338	202	456	539	415	258	523	492	414	498	124	519	108	67	61	504	282	167	187	
Oct. 22-----	480	148	465	103	372	---	130	63	257	345	220	422	623	408	264	---	248	380	104	374	429	190	470	428	467	334	508	301	427	313	52	395	231	168	401	345	
Oct. 23-----	464	74	424	317	240	25	178	87	46	238	31	475	610	287	215	---	99	378	247	---	451	288	366	293	446	297	538	280	415	282	280	363	379	---	441	386	
Oct. 24-----	460	6	323	243	391	16	82	(398)	34	325	44	501	607	444	65	130	318	160	148	341	437	65	422	333	381	333	447	122	363	238	404	432	360	---	464	275	
Oct. 25-----	461	17	480	289	431	15	139	322	49	314	50	468	685	450	323	---	133	254	284	348	396	252	274	200	133	299	553	295	76	296	386	424	67	---	430	356	
Oct. 26-----	470	27	481	185	372	18	134	(318)	27	253	18	445	674	452	296	---	49	348	251	264	94	74	243	286	137	241	547	285	352	284	252	400	50	---	343	382	
Oct. 27-----	470	42	482	217	425	16	127	134	45	312	73	245	680	384	58	406	72	164	181	332	214	147	180	352	418	312	515	279	369	272	156	420	221	---	110	296	
Oct. 28-----	107	2	463	230	412	32	123	201	193	318	134	96	666	403	43	414	285	360	190	328	270	338	117	389	244	311	565	269	376	278	408	392	335	---	110	294	
Average-----	438	45	455	225	392	20	129	(203)	93	301	81	379	638	368	188	---	151	324	224	331	327	194	296	325	318	304	525	262	340	289	277	404	235	---	315	341	
Oct. 29-----	193	11	87	208	330	13	---	---	48	315	65	51	660	449	38	324	211	345	210	316	334	338	112	390	128	319	207	281	270	210	277	415	267	315	---	111	356
Oct. 30-----	224	11	73	172	338	12	---	---	282	326	118	275	66	625	466	146	299	281	322	167	303	---	313	148	380	331	301	235	270	379	260	428	266	356	---	118	359
Oct. 31-----	422	92	98	285	228	9	---	---	286	156	312	146	360	607	444	65	130	318	160	148	192	---	318	148	380	331	301	235	270	379	260	428	266	356	---	118	359
Nov. 1-----	411	20	258	285	68	6	---	---	286	156	312	146	360	607	444	65	130	318	160	148	192	---	318	148	380	331	301	235	270	379	260	428	266	356	---	118	359
Nov. 2-----	423	39	294	159	178	5	---	---	264	210	113	195	154	676	124	273	280	60	324	112	293	404	188	437	292	437	313	593	154	380	81	55	221	46	---	318	340
Nov. 3-----	418	53	416	43	384	11	---	---	211	30	118	37	59	584	384	151	368	304	261	72	327	380	287	441	353	376	292	460	128	369	43	280	297	283	---	157	267
Nov. 4-----	397	65	99	40	108	6	---	---	50	316	271	75	679	244	253	149	284	324	122	327	362	285	442	319	388	304	260	119	335	71	119	98	284	240	89	263	
Average-----	355	41	189	135	228	9	---	---	230	207	246	187	173	633	334	150	248	237	258	121	296	360	277	341	354	321	294	379	209	347	177	252	203	238	---	200	310

Note.--Langley is the unit used to

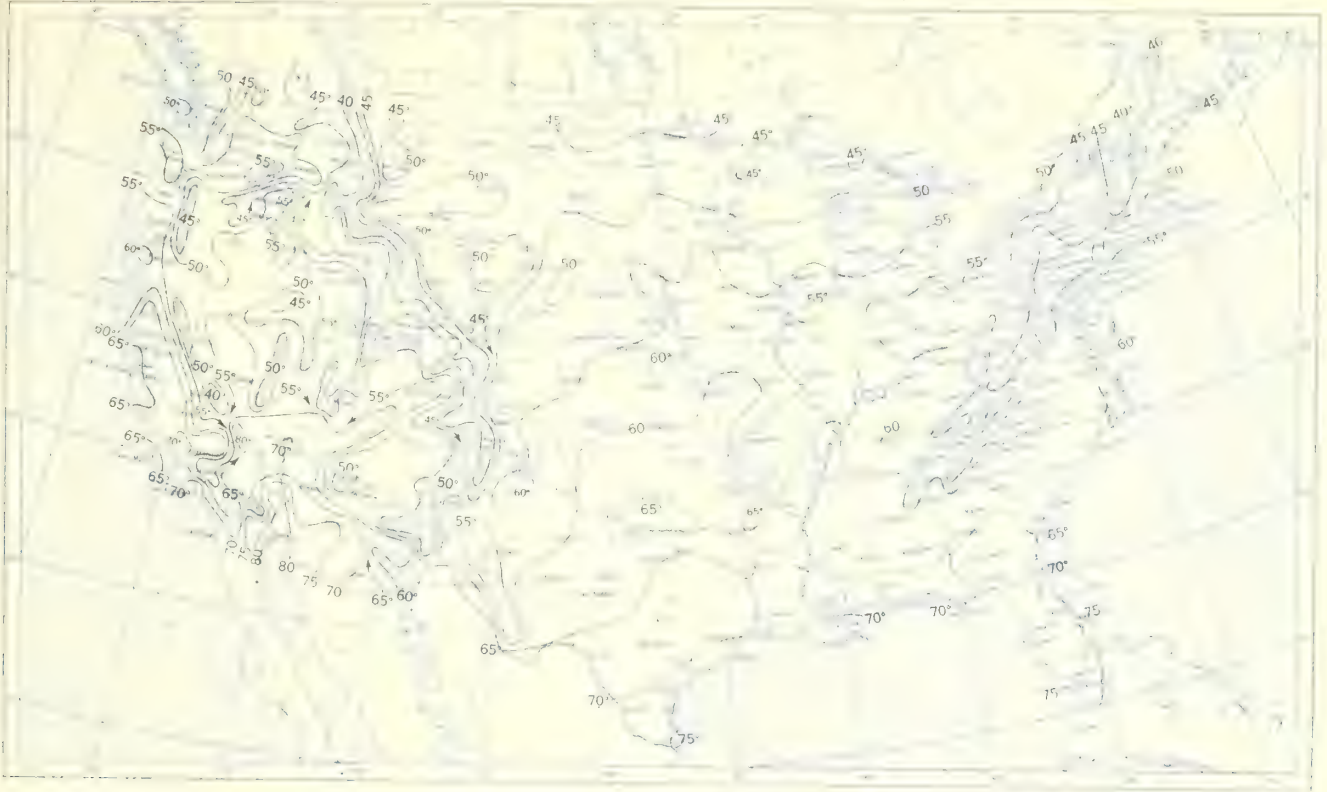
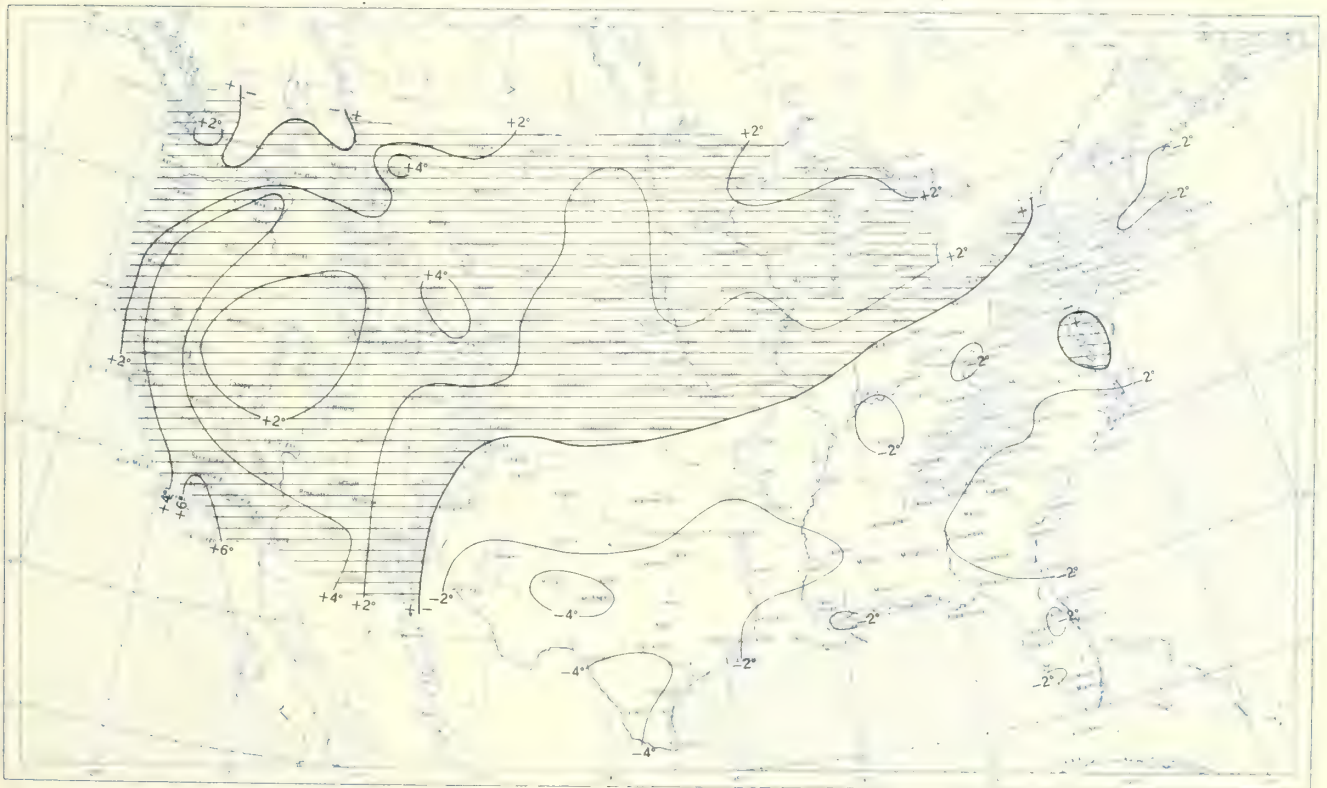
SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

OCTOBER 1958

	Laramie, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Madison, Wis.	Medford, Oreg.	Miami, Florida	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Portland, Me.	Pullman, Wash.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island (Silver Hill Obs.)	Washington, D. C.	
1958																																				
Oct. 1-----	285	514	548	557	---	633	480	475	418	555	448	461	55	38	462	156	562	307	424	238	185	501	376	118	483	368	89	392	339	---	---	224	545	457	673	54
Oct. 2-----	469	526	493	465	435	641	518	367	427	289	240	262	240	428	296	190	205	467	428	67	450	580	199	152	521	253	431	386	487	404	485	564	483	550	336	
Oct. 3-----	468	523	434	524	149	---	(465)	346	426	265	240	262	240	428	296	190	205	467	428	67	450	580	199	152	521	253	431	386	487	404	485	564	483	550	336	
Oct. 4-----	459	524	534	524	149	---	(465)	346	426	265	240	262	240	428	296	190	205	467	428	67	450	580	199	152	521	253	431	386	487	404	485	564	483	550	336	
Oct. 5-----	353	373	314	518	472	569	440	---	403	220	475	481	261	216	432	51	---	425	415	76	411	595	107	543	339	324	363	110	401	192	387	536	---	753		
Oct. 6-----	361	472	528	200	494	---	569	472	569	472	569	472	569	472	569	472	569	472	569	472	569	472	569	472	569	472	569	472	569	472	569	472	569	472	569	
Oct. 7-----	407	469	446	477	471	---	504	72	398	516	502	454	440	386	302	453	408	413	156	472	390	435	287	289	523	55	379	65	422	124	407	521	514	252	447	
Average-----	400	486	500	466	393	616	(406)	357	414	390	383	383	317	339	394	303	369	363	354	311	394	476	352	204	479	269	333	275	351	320	366	492	385	531	397	
Oct. 8-----	270	472	311	433	303	---	460	178	331	386	510	406	321	354	---	219	407	329	237	450	273	464	(138)	251	494	73	320	315	212	296	355	527	470	304	359	
Oct. 9-----	360	485	313	492	235	---	436	237	393	457	512	297	273	354	---	219	407	329	237	450	273	464	(138)	251	494	73	320	315	212	296	355	527	470	304	359	
Oct. 10-----	460	483	419	507	394	---	402	---	382	443	476	346	366	351	451	311	535	338	171	433	329	476	128	232	402	290	228	112	221	87	229	447	508	640	386	
Oct. 11-----	368	476	525	(478)	248	322	430	---	362	497	93	475	401	371	406	489	190	276	328	491	416	457	281	190	301	340	110	217	256	172	121	523	544	586	451	
Oct. 12-----	424	463	507	463	442	411	481	401	(373)	538	171	480	439	468	396	480	172	398	350	452	404	470	342	290	454	154	396	94	488	326	445	438	493	618	445	
Oct. 13-----	340	452	466	446	500	427	448	405	378	390	240	453	207	314	362	405	---	394	353	411	390	479	334	243	427	71	239	168	344	316	198	434	497	642	166	
Oct. 14-----	415	447	274	431	357	421	448	426	376	480	55	390	398	184	342	405	---	394	353	411	390	479	334	243	427	71	239	168	344	316	198	434	497	642	166	
Average-----	377	468	402	(464)	354	395	441	333	(371)	456	294	407	344	289	390	403	358	335	311	448	378	466	(236)	279	439	195	246	167	350	244	258	473	503	571	364	
Oct. 15-----	408	448	446	434	163	440	464	408	359	500	141	239	230	324	325	362	399	364	305	274	265	307	461	291	283	(443)	238	281	189	335	275	345	336	464	557	333
Oct. 16-----	389	242	351	430	440	101	128	137	315	506	357	397	62	53	377	227	---	254	332	104	311	439	121	469	212	---	263	76	166	291	25	503	466	284	72	
Oct. 17-----	398	427	433	431	430	429	462	---	197	200	469	330	390	381	385	373	430	366	166	249	322	427	328	470	358	350	357	95	416	87	355	123	497	603	357	
Oct. 18-----	355	405	434	439	447	361	394	433	197	200	469	330	390	381	385	373	430	366	166	249	322	427	328	470	358	350	357	95	416	87	355	123	497	603	357	
Oct. 19-----	298	429	471	350	447	429	464	332	169	249	478	433	384	335	347	408	443	373	63	71	333	457	260	483	(473)	272	355	209	427	41	399	160	475	531	308	
Oct. 20-----	396	446	463	295	347	397	422	253	363	---	425	406	244	189	291	434	295	323	339	93	66	473	293	174	437	---	334	276	355	286	380	420	344	---	153	
Oct. 21-----	217	456	468	295	347	397	422	253	363	---	425	406	244	189	291	434	295	323	339	93	66	473	293	174	437	---	334	276	355	286	380	420	344	---	153	
Average-----	340	437	439	388	370	413	447	347	264	338	386	365	324	325	362	399	364	305	274	265	307	461	291	283	(443)	238	281	189	335	275	345	336	464	557	333	
Oct. 22-----	391	442	348	431	60	366	365	403	90	522	417	316	270	59	375	286	---	254	332	104	311	439	121	469	212	---	263	76	166	291	25	503	466	284	72	
Oct. 23-----	389	242	351	430	440	101	128	137	315	506	357	397	62	53	377	227	---	254	332	104	311	439	121	469	212	---	263	76	166	291	25	503	466	284	72	
Oct. 24-----	366	309	453	430	408	174	207	63	310	552	341	373	76	230	374	345	354	37	335	368	323	108	453	204	---	---	---	---	---	---	---	---	---	---	---	
Oct. 25-----	285	367	182	323	415	217	214	61	287	439	84	346	90	12	203	247	349	90	309	395	351	328	29	365	248	---	---	---	---	---	---	---	---	---	---	
Oct. 26-----	366	378	123	416	260	281	330	89	278	501	91	83	50	23	375	65	154	21	254	276	168	357	95	133	396	---	---	---	---	---	---	---	---	---	---	
Oct. 27-----	241	368	51	265	424	378	389	381	249	518	144	304	50	76	321	178	487	37	284	154	143	395	274	61	404	---	---	---	---	---	---	---	---	---	---	
Oct. 28-----	119	399	433	409	341	366	395	398	248	462	97	363	138	71	360	396	435	70	283	393	83	404	296	67	418	---	---	---	---	---	---	---	---	---	---	
Average-----	308	358	277	387	335	269	290	227	284	486	319	312	105	76	341	249	356	86	295	257	249	317	151	255	398	---	---	---	---	---	---	---	---	---	---	
Oct. 29-----	(218)	400	423	402	300	384	426	334	294	397	80	379	86	157	362	384	274	128	398	382	319	445	291	444	414	---	---	---	---	---	---	---	---	---	---	
Oct. 30-----	342	401	410	386	277	380	415	---	182	160	119	381	335	304	360	387	335	223	360	428	427	291	100	242	360	---	---	---	---	---	---	---	---	---	---	
Oct. 31-----	338	404	390	377	90	330	364	377	68	342	283	319	237	312	297	182	301	398	272	320	398	272	360	302	---	---	---	---	---	---	---	---	---	---	---	
Nov. 1-----	344	397	52	256	182	365	405	329	164	401	434	282	237	312	297	182	301	398	272	320	398	272	360	302	---	---	---	---	---	---	---	---	---	---	---	
Nov. 2-----	349	378	70	383	404	384	397	225	110	457	435																									

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

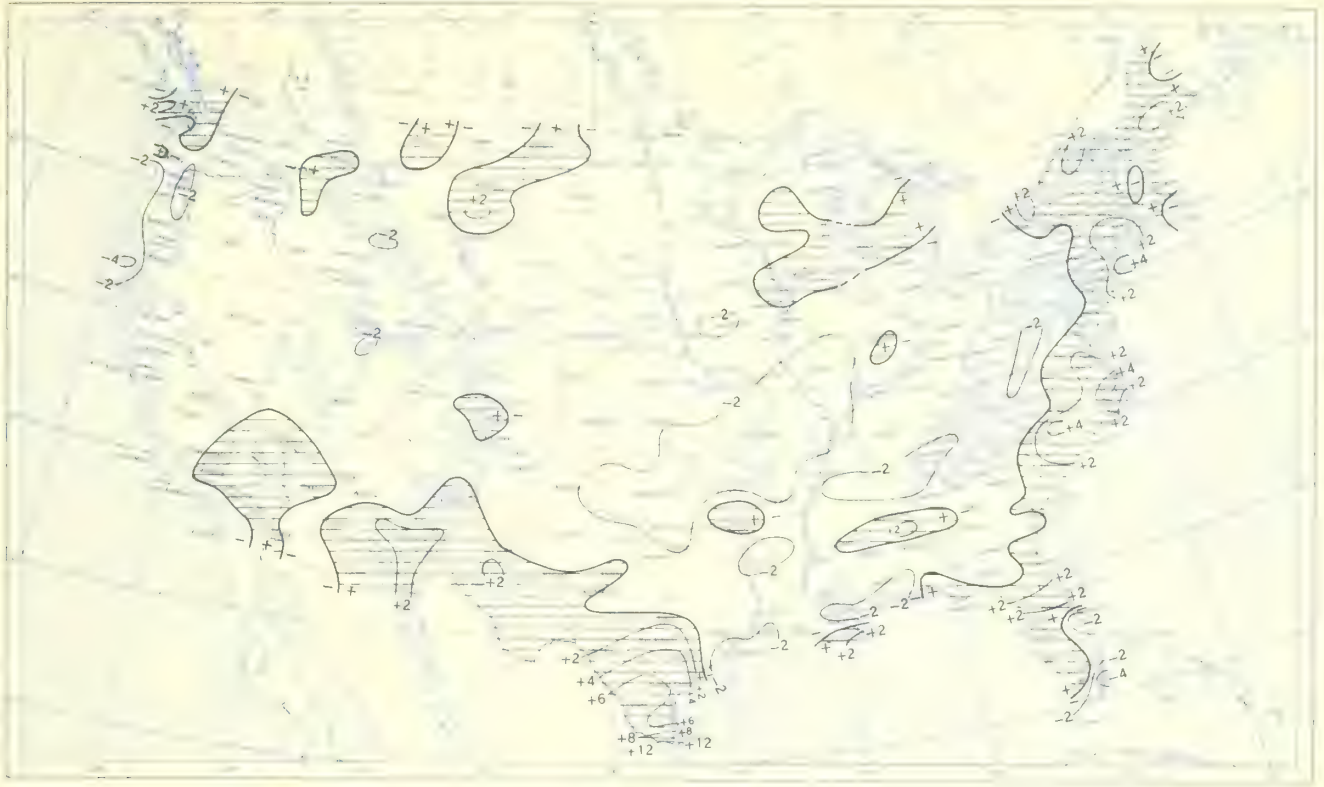
Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, October 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), October 1958.

A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

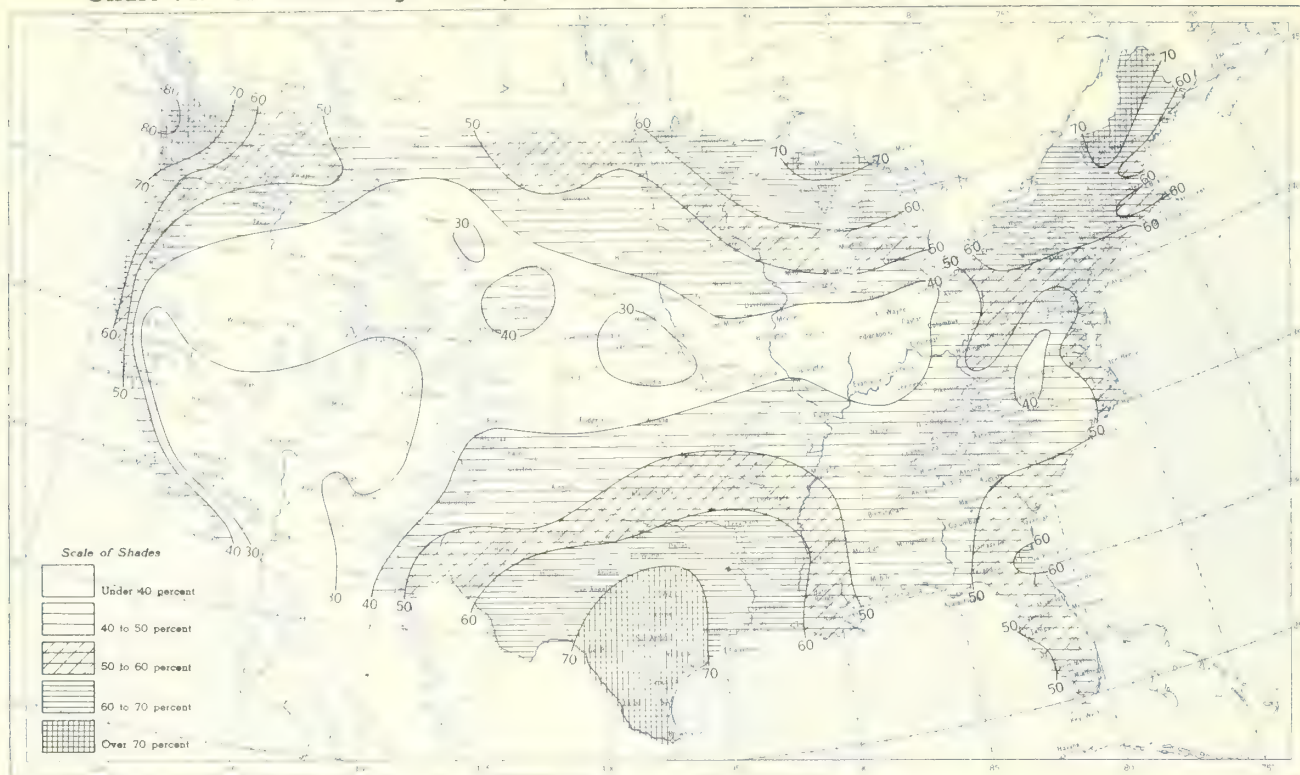
Chart II. Total Precipitation (Inches), October 1958.



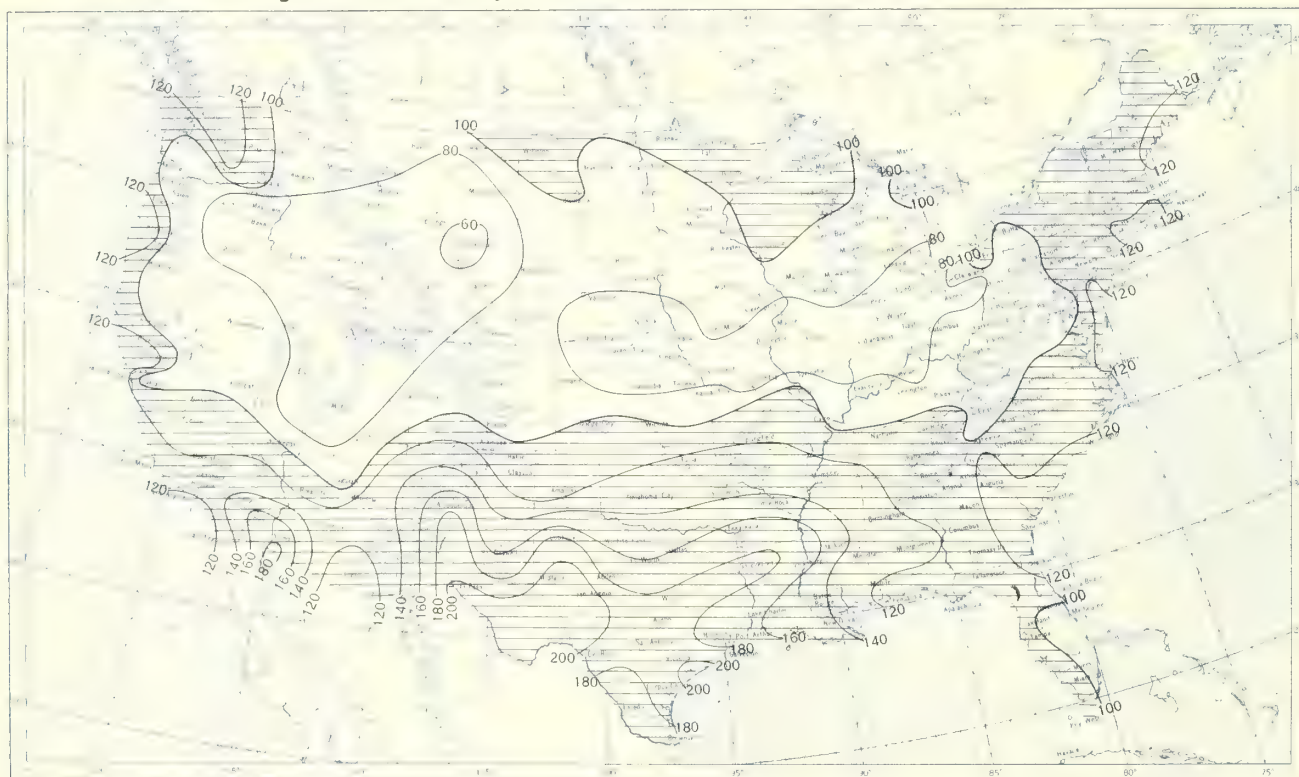


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, October 1958

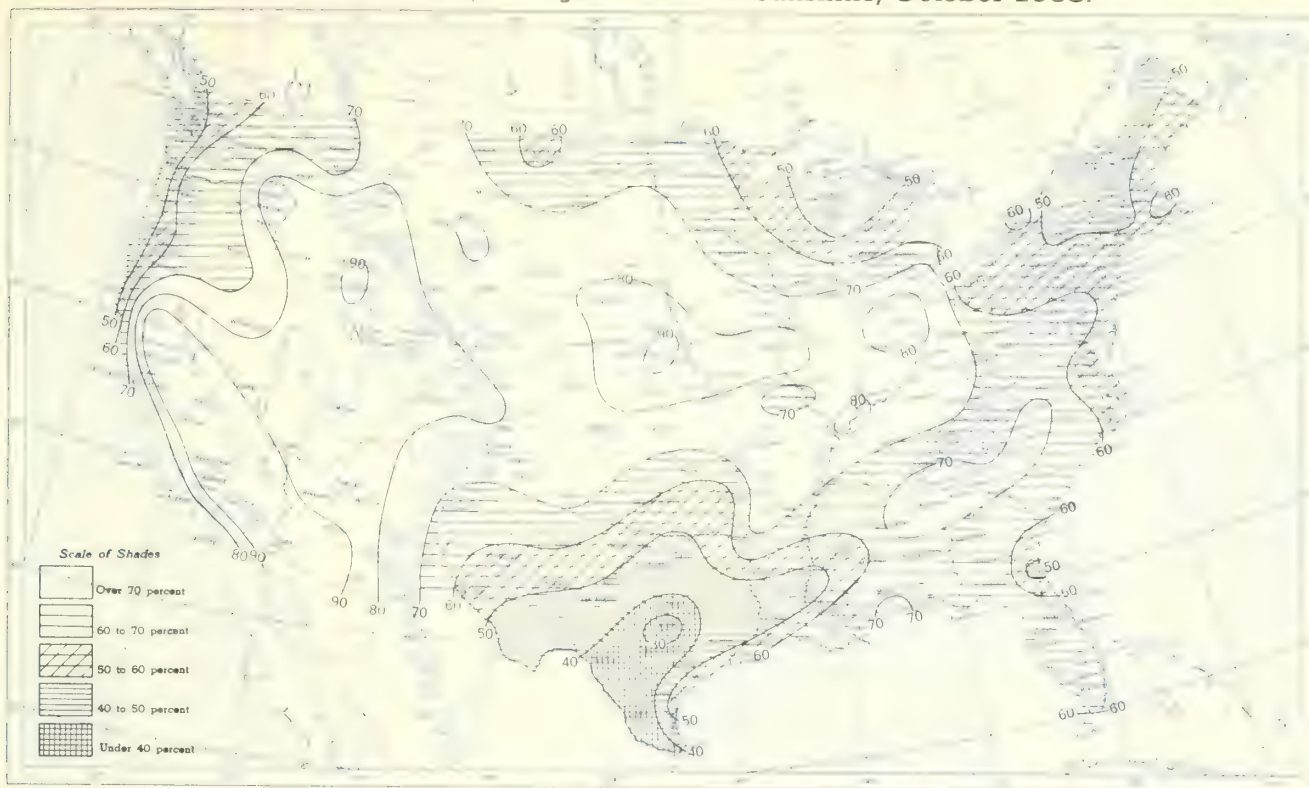


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, October 1958.

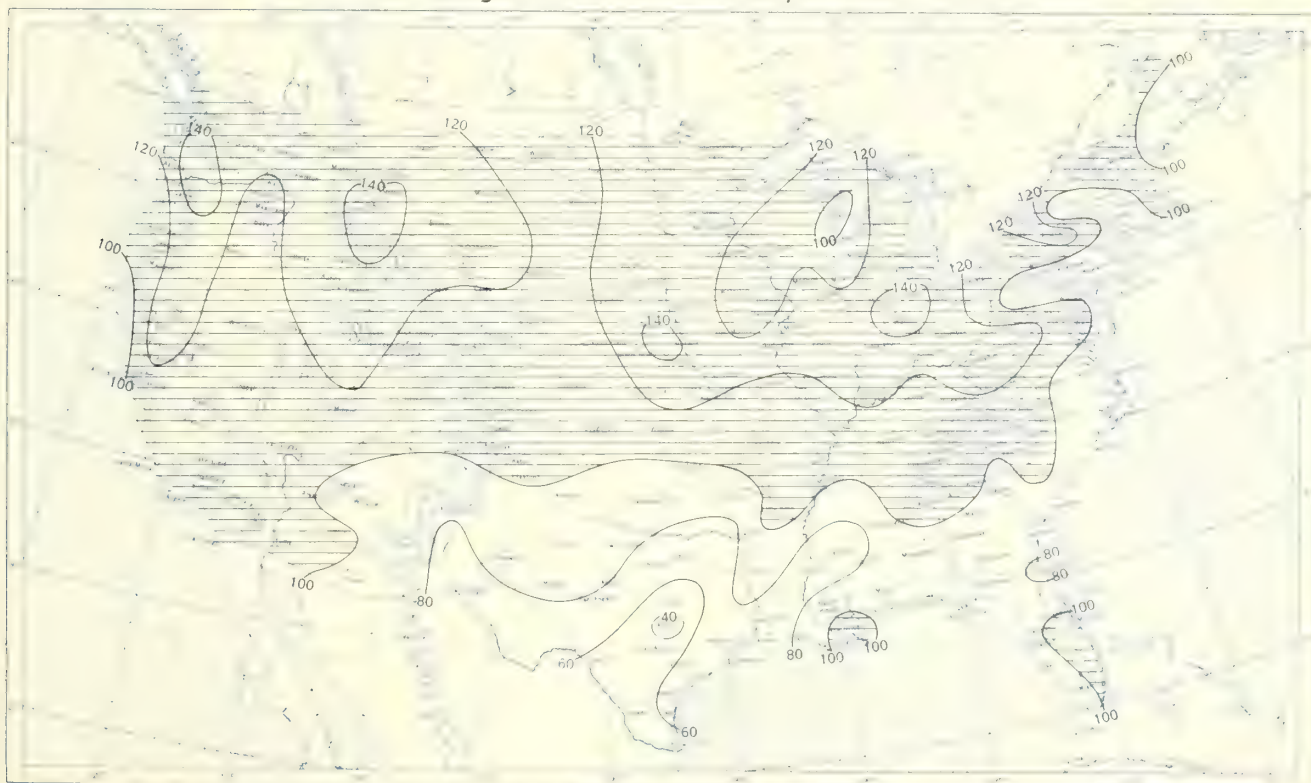


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, October 1958.



B. Percentage of Normal Sunshine, October 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

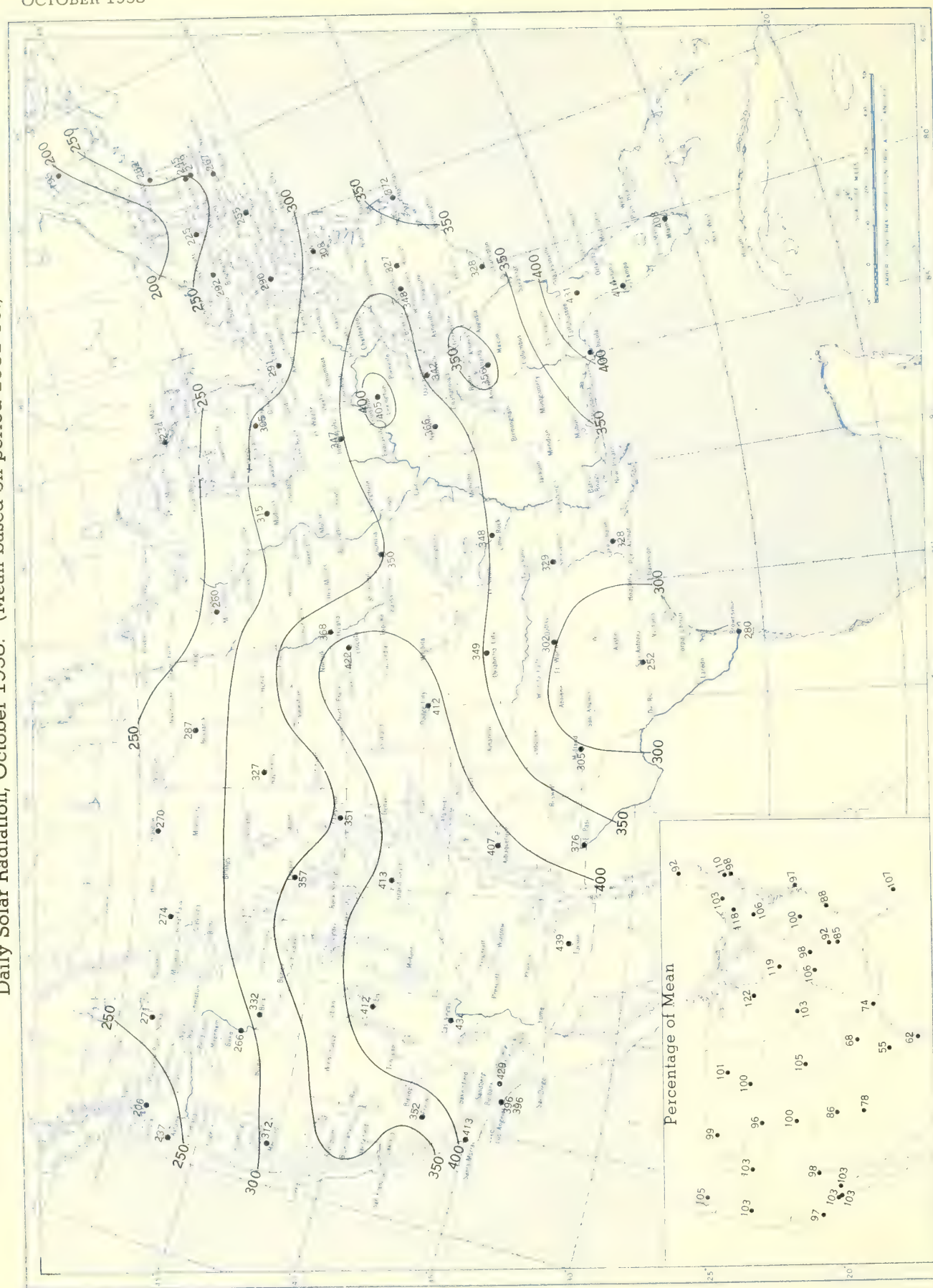
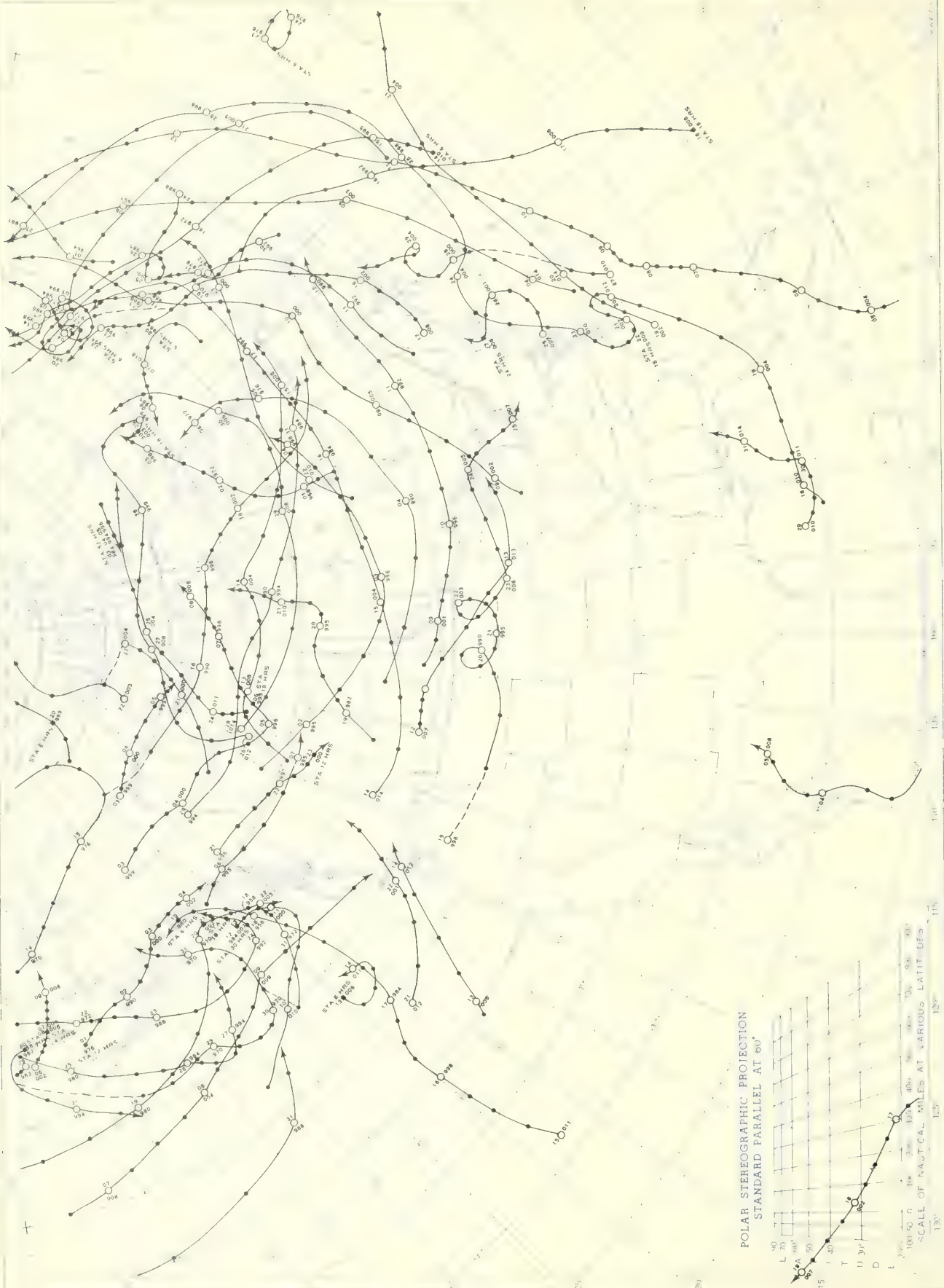


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley's (1 langley = 1 gm. cal. cm.⁻²). Basic data for isolines obtained from supplementary data for which limits of accuracy are wider than for those data shown.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, October 1958.



Chart X. Tracks of Centers of Cyclones at Sea Level, October 1958.



Average Pressure (mb.) from Normal, October 1958.



Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1890-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, October 1958. Average Height and Temperature, and Resultant Winds.

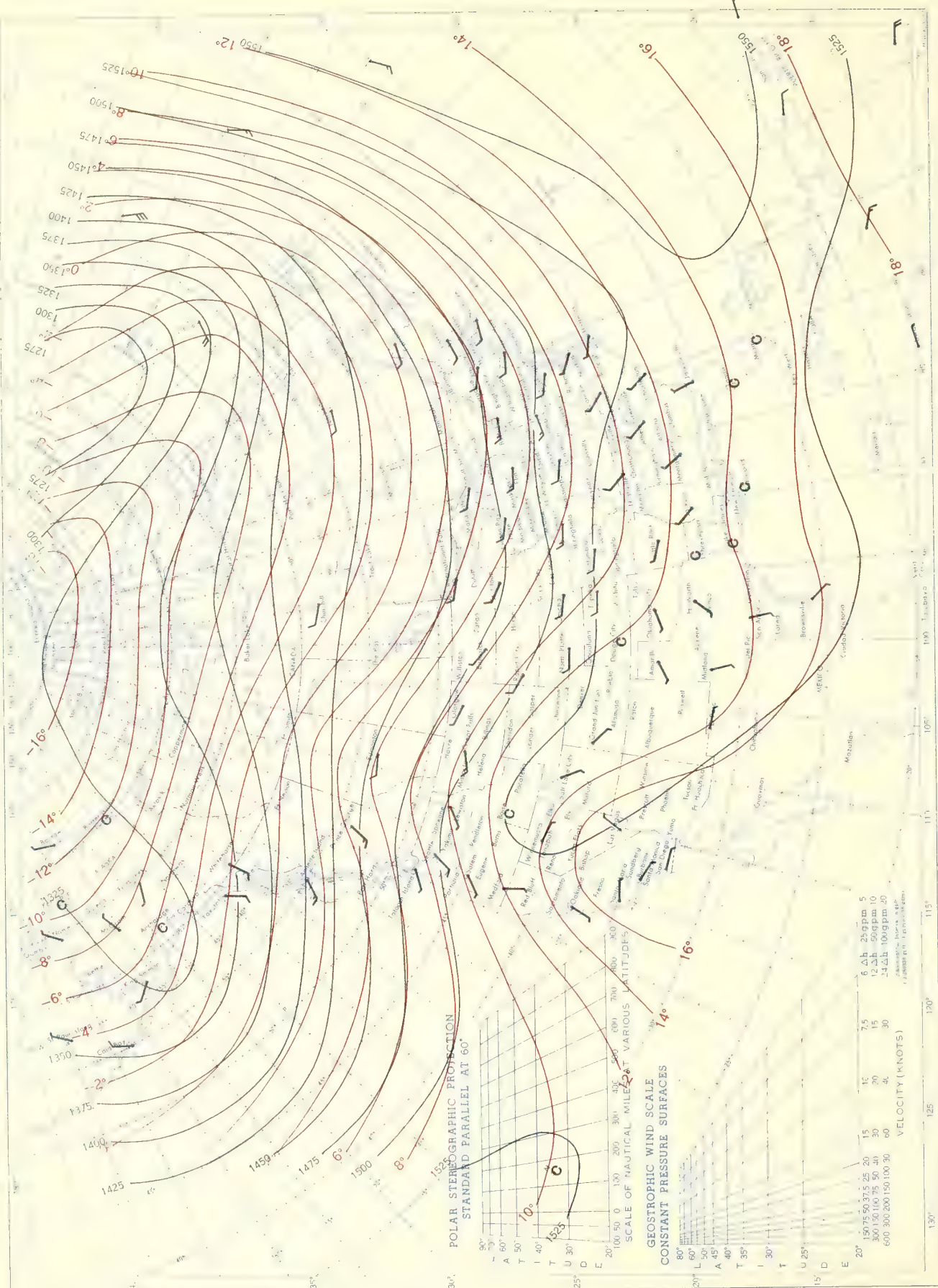
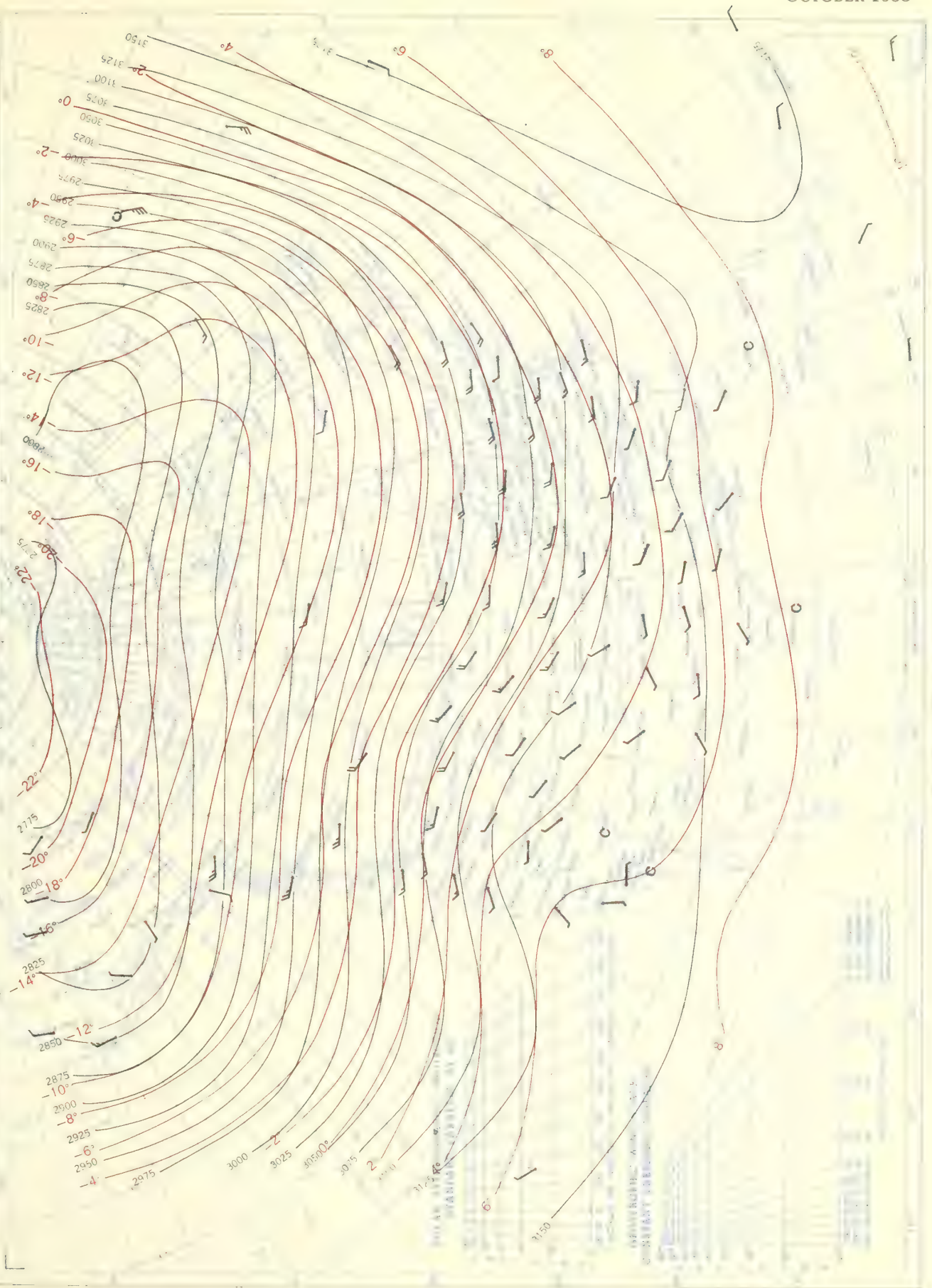


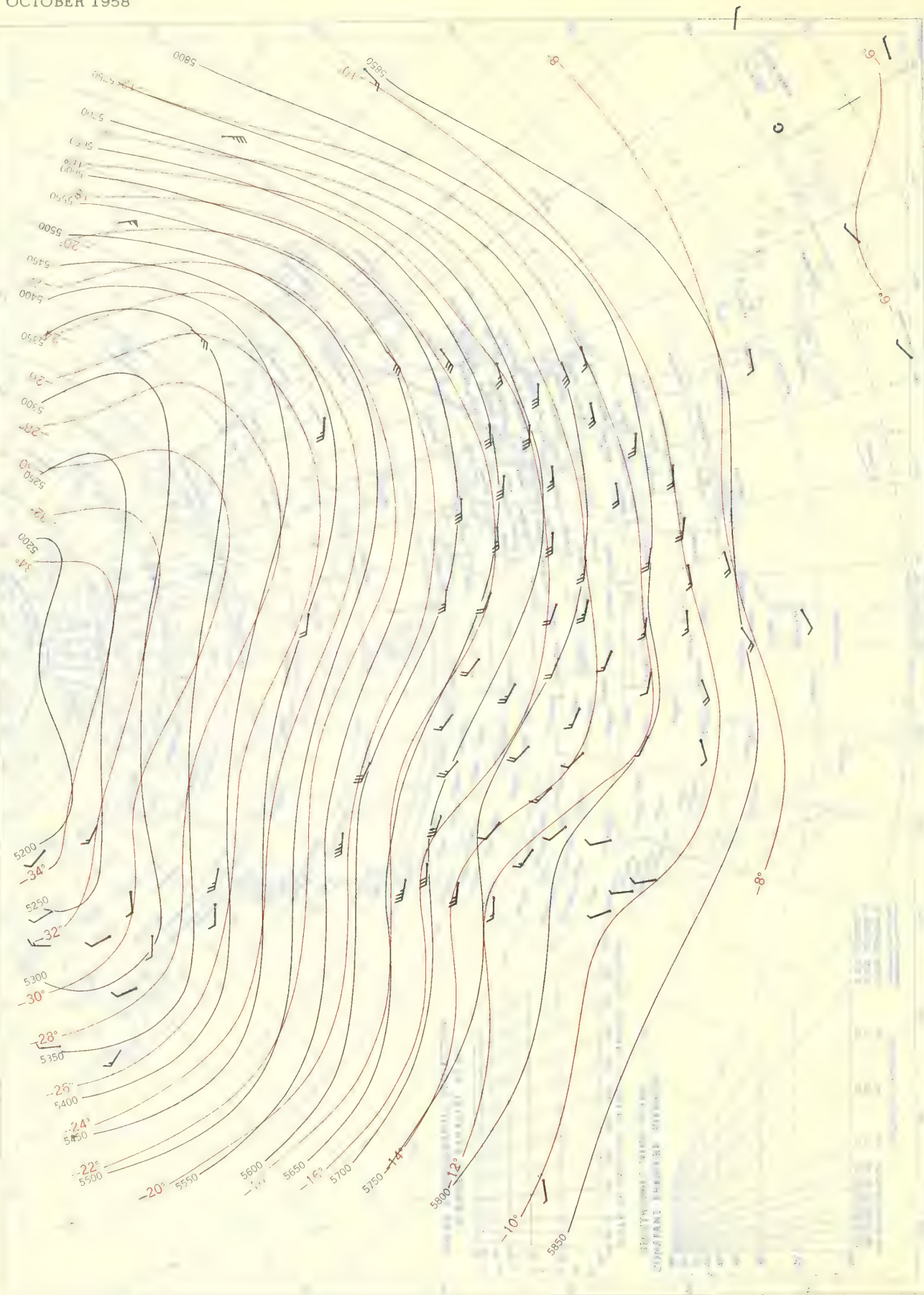
Chart XII. 850-mb. Surface, 1200 GMT, October 1958. Average Height and Temperature, and Resultant Winds.

Chart XIII. 700-mb. Surface, 1200 GMT, October 1958. Average Height and Temperature, and Resultant Winds.



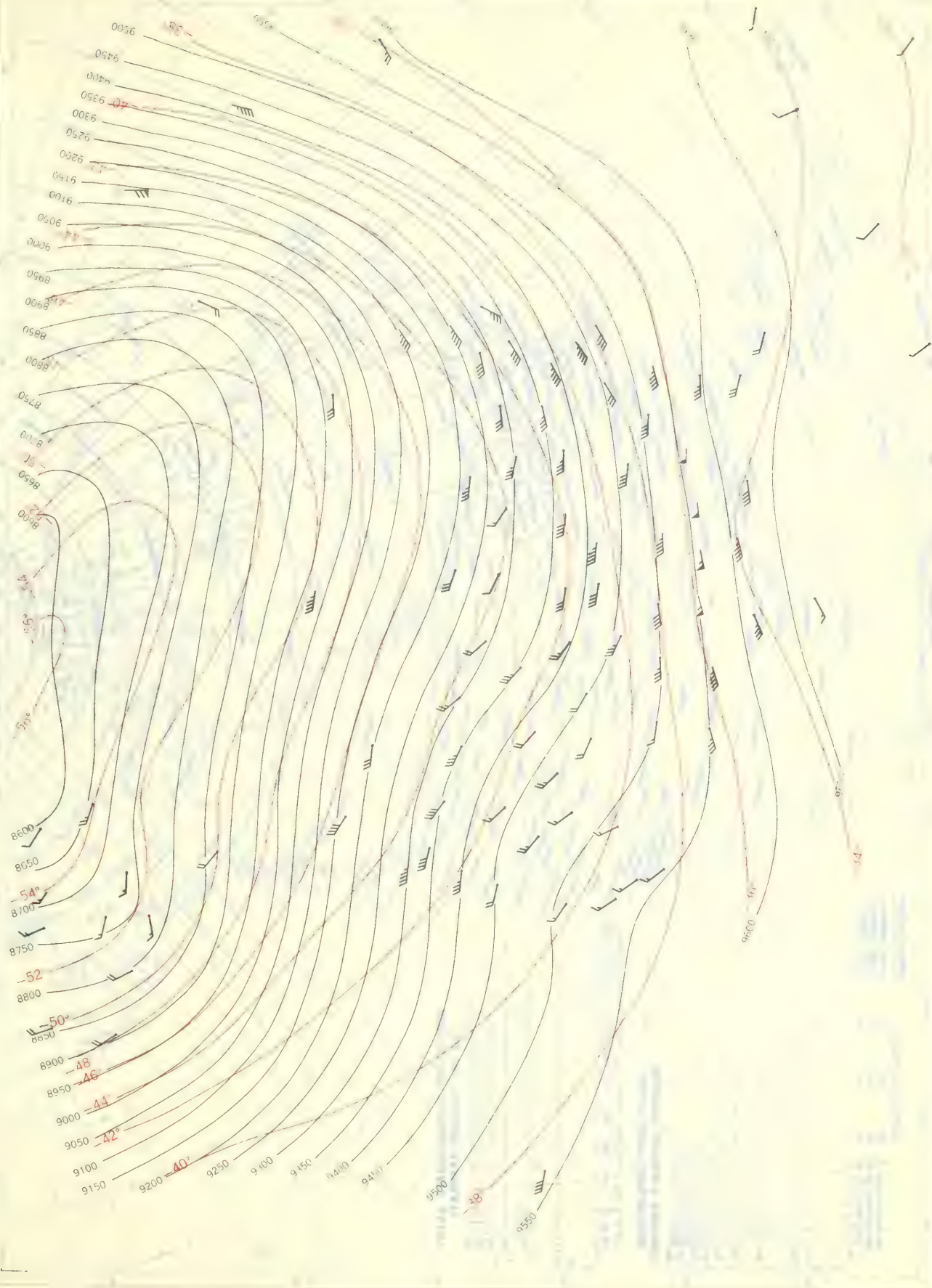
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, October 1958. Average Height and Temperature, and Resultant Winds.



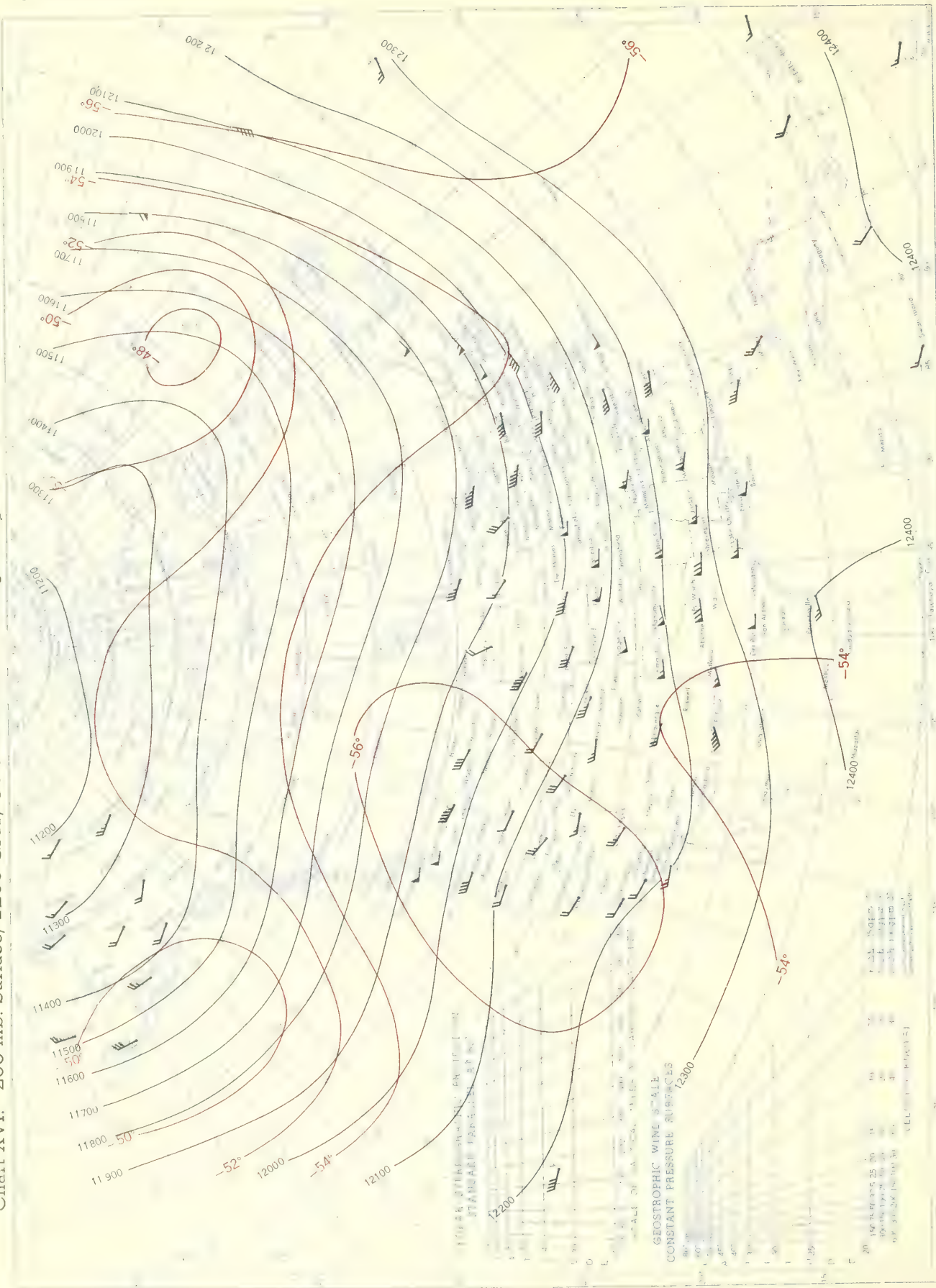
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, October 1958. Average Height and Temperature, and Resultant Winds.



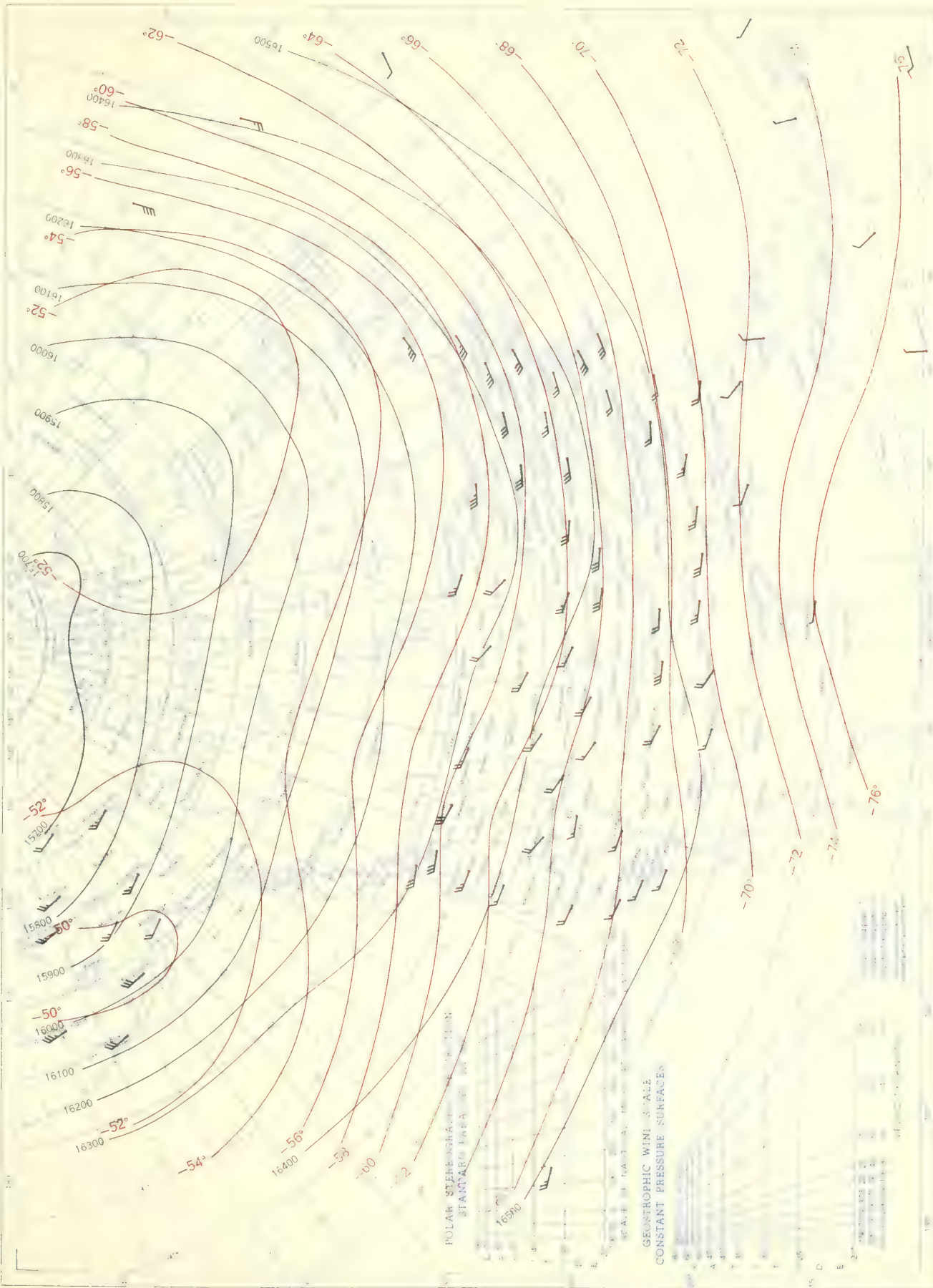
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, October 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, October 1958. Average Height and Temperature, and Resultant Winds.



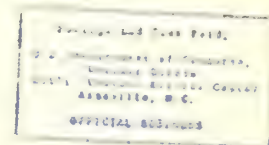
See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE
LEWIS L. STRAUSS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

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NOVEMBER 1958
Volume 9 No. 11



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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 11

NOVEMBER 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

The passage of several vigorous storm systems in the course of the month and extensive surges of cold air deep into southern areas during the latter half resulted in more than the usual stormy weather, great temperature ranges, and record-breaking snowfall with occasional blizzard conditions in the Great Plains. Extreme temperature fluctuations were hidden in the monthly average which were slightly above average in virtually the entire country. Near normal amounts of precipitation in most of the Nation were fairly well distributed through the month, with the greatest excess occurring in the extreme northern Great Plains where most needed.

TEMPERATURE.--Temperatures for November averaged above normal by as much as 2° in the western half of the Nation and 2° to as much as 6° in the eastern half. Hidden in these near normal averages was the extreme range in temperature fluctuations, which occurred during the month as vigorous extratropical cyclones crossed different sections of the country.

The first 10 days of the month were relative mild over the entire country; and warm, southerly winds in the central and lower Rocky Mountain region, induced by an area of low pressure moving eastward along the Canadian Border, were responsible for unusually high temperatures on the 9th. On that date, Elko, Nev., recorded 74°, a new November record, and Winnemucca, Nev., recorded 75°, a new high there for so late in the season.

Relative to normal, the highest temperatures during the month occurred in the eastern half of the country about midmonth. For the week ending the 17th, temperatures averaged 18° above normal at Kansas City, Mo., and 9° or more over the entire area from the eastern Great Plains to the Appalachians. On the 17th and 18th maximum temperatures, which ranged from the middle 80's in the South to the low and middle 70's in the lower Great Lakes region, established new late season highs at numerous stations.

The coldest weather in the Far West occurred about midmonth. On the 16th, Ely, Nev., recorded -10°, a new low for November; and Fresno, Calif., recorded 27° on the same date, a new record low for so early in the season there. On the 17th, Santa Maria, Calif., and Yuma, Ariz., recorded new early season lows of 25° and 30° respectively. On the 18th, Flagstaff and Tucson, Ariz., reported new low temperatures for November of -13° and 24°, respectively.

The coldest weather in most areas east of the Rockies occurred during the closing days of the month, a period of subzero minima in the northern Great Plains and upper Mississippi Valley, with minima also dropping to zero at numerous points in Michigan, Indiana, Ohio, Pennsylvania, and northern portions of New York State and New England.

PRECIPITATION.--November precipitation was fairly well distributed over the Nation, as indicated by only a few widely scattered sections with less than 50 percent of normal and only 1 significant area which received more than twice the normal

amount. Monthly totals generally exceeded 2 inches east of the Great Plains and along the northern Border, over 4 inches in a belt extending from Arkansas through central Indiana, and up to 15 inches or more along the north Pacific coast. At the end of the month, more moisture was needed in the lower Great Plains and sections along the south Atlantic coast. No serious floods occurred during the month.

The main area receiving 200 percent or more of precipitation included northwestern Minnesota, most of North Dakota and Montana, and some adjacent areas of nearby states. In most of this area precipitation had been greatly deficient during the spring and summer.

SNOWFALL.--Much precipitation in northern areas was in the form of snow during the latter half of the month. A total of 26.4 inches at Havre, Mont., set a new record for November there, and a 6.4-inch fall at Tucson, Ariz., on the 16th was the second time of record snow has fallen there in November, and it was also the heaviest amount for any month of record. New 24-hour record falls for November included 5.2 inches at Great Falls, Mont., on the 14th and 15th; 2.6 inches at Oklahoma City, Okla., on the 27th and 28th; and 6.9 inches at Evansville, Ind., on the 28th.

The first extensive snowfall occurred in the Rocky Mountain region and western Great Plains from about the 15th to the 18th. Following this storm, depths in the western Great Plains ranged from an inch in the Texas Panhandle to as much as 20 inches in the Dakotas. Most of this snow melted by the 22d, although most of North Dakota had snow on the ground the remainder of the month.

More snow fell near the Canadian Border east of the Rockies on the 23d and 24th. Additional falls on the 27th, 28th, and 29th covered the ground with 1 to 10 inches from the central Great Plains through the Ohio Valley and Northeast. Most of this cover had disappeared from the central Great Plains by the end of the month, but a few inches remained on the ground in southern Illinois, in areas north of the Ohio Valley, and from 6 inches to a foot in western Pennsylvania, most of New York State, and northern New England.

DESTRUCTIVE STORMS.--An extratropical storm accompanied by high winds, that at times reached hurricane force, caused widespread damage as it moved from the Pacific Northwest to the Great Lakes on the 3d and 4th. A measured wind speed of 75 m.p.h. set a new record for November at Lander, Wyo.

The worst storm of the month moved from the Southwest to the Great Lakes from the 16th to the 18th. Accompanying winds of 60 m.p.h. set new records for November at St. Joseph, Mo., and Minneapolis, Minn., on the 17th, and peak gusts of 104 m.p.h. were reported at Childress, Tex. Heavy snows, high winds, and low temperatures created blizzard conditions in parts of the Great Plains, caused extensive damage, and blocked many roads. Thirty-three lives were lost when a freighter broke up in Lake Michigan on the 18th. Cook and Lake Counties, Minnesota, were declared disaster areas. On the 16th and

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

17th tornadoes occurred in Oklahoma, Kansas, and Missouri.

Another storm on the 24th and 25th moved from the Pacific Northwest to the Great Lakes, and during its passage on the 24th Lewiston, Idaho, measured winds of 64 to 84 m.p.h., the highest on record there. Blizzard conditions marked its

passage across the northern Great Plains, and glaze covered over two-thirds of Oklahoma.

The month's last major storm moved from the northern Gulf of Mexico to New England on the 28th and 29th, and gale winds of 70 m.p.h. caused some damage in Connecticut and Massachusetts.

CONDENSED CLIMATOLOGICAL SUMMARY

NOVEMBER 1958

Section	Temperature						Precipitation					
	Monthly extremes						Monthly extremes					
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.		
Alabama	Martin Dam	91	17	5 Stations	18	30+	Hytap	5.95	Uniontown	1.11		
Arizona	Bouse	94	8	Maverick	-19	18	Fossil Springs	2.78	5 Stations	.00		
Arkansas	2 Stations	85	17+	Mammoth Spring	2	29	Turnpike	11.09	Sparkman 4E	2.12		
California	3 Stations	93	6+	White Mountain 2	-28	17	Gasquet RS	12.54	17 Stations	.00		
Colorado	Holly	83	16	Fraser	-24	28	Wolf Creek Pass 1E	3.20	Sedgwick 5S	.07		
Connecticut	3 Stations	67	15+	Salisbury	8	30	Wolcott Reservoir	4.80	Bridgeport WB AP	2.41		
Delaware	Lewes 1SW	75	14	2 Stations	17	30	Dover	3.49	Bridgeville 1NW	2.32		
Florida	2 Stations	92	19	Milton Exp. Station	29	29	South Miami 3W	5.61	Naples	.28		
Georgia	13 Stations	88	17+	Blairsville Exp. Sta.	18	20	Flat Top	8.53	Milhaven 8E	T		
Idaho	2 Stations	76	9	Obsidian 3SSE	-24	17	Wallace	10.89	Mackay RS	.06		
Illinois	Harrisburg	82	17	Stockton 1N	-2	30	Grand Tower 2N	7.49	Annawan	.92		
Indiana	2 Stations	83	18+	Greensburg 3SW	-12	30	Crawfordsville Pwr. Pl.	7.04	Whiting	1.26		
Iowa	Columbus Junction	76	14	Milford 4NW	-7	30	Toledo	4.25	Sioux Rapids	.03		
Kansas	Frederonia 1E	85	11	Johnson 11ESE	-9	28	Pittsburg	7.22	McDonald	.21		
Kentucky	Heviz	85	18	Cynthiana	-6	30	Hickman 1E	5.35	Oneonta Dam 3S	2.02		
Louisiana	Oberlin Fire Tower	89	15+	Many 4NNE	20	29	Mittie 2SE	5.73	Golden Meadow 9NW	.60		
Maine	3 Stations	65	15	2 Stations	0	30+	Ellsworth	6.73	Presque Isle	1.69		
Maryland	Frostburg	79	18	Bittinger 2NW	-4	30	Waldorf Police Brks	3.64	Sandy Point	1.47		
Massachusetts	2 Stations	69	16+	Fitchburg 2S	0	30	Southbridge 3SW	5.30	Chatham LTSTA	2.00		
Michigan	Grand Haven Fire Dept.	73	18	Vanderbilt Trout Sta.	-12	30	Baldwin State Forest	5.66	Owosso Sewage Plant	1.23		
Minnesota	Tracy Power Plant	72	2	Roseau Power Plant	-31	29	Kettle Falls	3.52	Chaska 1NE	.55		
Mississippi	Lumberton 2N	87	17	Ripley	16	29	Macon 2NE	7.17	Pearlington 2NNE	.85		
Missouri	Boonville Waterworks	84	18	Greenville 4NNW	0	29	Koshkonong	12.09	Tarkio	.98		
Montana	Conrad	73	1	Chinook 1E	-28	26	Essex	10.83	Glen 4N	.05		
Nebraska	Hastings	82	4	Nenzel 20S	-9	28	Falls City	2.65	Gordon 27SE	.00		
Nevada	3 Stations	84	11+	Mountain City RS	-17	17	Jarbridge	2.40	Sand Pass	.00		
New Hampshire	2 Stations	65	15+	Lebanon CAA AP	-3	30	South Weare 1SE	5.20	Bethlehem	1.98		
New Jersey	3 Stations	72	15+	High Point Park	6	30	Milton	4.31	Burlington	1.50		
New Mexico	Cienega SSSW	84	3	Gavilan	-20	18	Sandia Crest	2.68	6 Stations	.00		
New York	3 Stations	76	18	Lake Placid Club	-10	30	Sherman	6.08	Ellenburg Depot	1.21		
North Carolina	2 Stations	86	17+	3 Stations	14	30+	Clingmans Dome	7.49	Laurinburg	.11		
North Dakota	3 Stations	72	2+	Langdon Exp. Farm	-31	29	Walhalla	3.98	Sherwood 3N	.30		
Ohio	Gallipolis 5W	85	18	Mansfield 6W	-17	30	Findlay Sewage Plant	6.14	Carrollton 2SW	1.33		
Oklahoma	Hollis	88	11	Hooker 1SW	-3	28	Broken Bow 1N	9.30	Eldorado	.17		
Oregon	2 Stations	75	9	Minam	-15	17	Valsetz	29.48	Huntington	.15		
Pennsylvania	do	81	18	Claysville 3W	-12	30	Linesville 5WSW	7.03	Covington 2WSW	1.11		
Rhode Island	do	68	14	Greenville	12	30	Newport	3.15	Providence WB AP	2.58		
South Carolina	Saluda	90	17+	Caesars Head	20	29	Sassafras Mountain	3.27	Branchville 6S	.08		
South Dakota	Kennebec	85	10	Deerfield 5NW	-20	26	Andover 7N	2.79	Mission 14SSE	T		
Tennessee	Carthage	85	17	Dresden	11	29	Haw Knob	8.15	Odomville	1.30		
Texas	Rio Grande City 2ESE	93	18	Stratford	-4	28	Clarksville 2E	8.04	4 Stations	.00		
Utah	2 Stations	79	10+	Cove Fort	-16	18	Tooele	3.85	Bite	.00		
Vermont	Dorset 1S	67	19	2 Stations	-5	30	Mays Mill	5.68	St. Albans Bay	1.26		
Virginia	Bedford	87	16	Big Meadows	-1	30	Norfolk	3.57	Speedwell	.90		
Washington	Dayton 1WSW	73	1	Winthrop 1WSW	-17	27	Cougar 1E	35.25	Kennewick	.78		
West Virginia	Williamson	87	19	Kumbrabow State Forest	-7	30	Alpena 1NW	4.02	Brushy Run	1.02		
Wisconsin	2 Stations	71	17+	Bloomer	-16	30	Beloit	4.84	Baldwin	.70		
Wyoming	Yoder	79	10	Sage 4NNW	-25	17+	Moose 3NW	4.64	Hampshire 9NE	T		
Puerto Rico	3 Stations	93	22+	Garzas Dam	50	30+	Rio Blanco Upper	16.94	Donoe Estate	.85		
Hawaii	Puunene CAA AP	91	1	Mauna Loa Slope Obs	29	10	Saddle Road	26.91	4 Stations	.00		

4 And also on an earlier date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

NOVEMBER 1958

State and station	Elevation (ground) ft.	Pressure			Temperature										Precipitation										Wind			No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal				No. of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity		Departure from normal	Greatest in 24 hours			Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
							Highest	Date	Lowest	Date			Total	In.		In.	In.	In.	In.	In.			In.	In.		In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.

CLIMATOLOGICAL DATA

NOVEMBER 1958

State and station	Pressure						Temperature										Precipitation										Wind				No. of days		
	Elevation - feet	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile		to sunset						
												Max. 90° F or above	Min. 32° F or below						Of inch or more	With thunderstorms	Speed	Direction			Clear	Partly cloudy							
												°F	°F						In.	In.	°F	%			In.	In.	°F	%	°F	°F	°F	°F	
IOWA																																	
Burlington	694	990.5	1016.8	53	32	42.6	3.1	73	17+	4	30	0	15	32	67	1.59	-.67	0.87	9	1	2.3	2	12.3	SSW	43	NW	5	8	11	11	5.9	69	
Des Moines	948	983.7	1015.8	53	31	41.7	3.3	70	3	4	30	0	16	29	63	2.00	-.32	1.85	6	1	.8	1	13.8	WNW	56	NW	17	10	6	14	5.7	63	
Dubuque	1065	989.5	1015.4	47	29	38.0	2.4	68	17	1	30	0	20	29	71	2.38	-.25	1.05	8	2	1.2	T	12.0	WNW	43	NW	25	10	8	12	5.6	64	
Sioux City	1094	972.9	1015.2	51	26	38.4	2.9	71	3	5	30	0	22	25	60	.80	-.40	.63	2	0	.3	T	12.0	WNW	43	NW	25	10	8	12	5.6	64	
Waterloo	870	-----	-----	49	27	37.9	1.9	67	17	0	30	0	22	--	67	2.44	-.50	2.32	5	1	.3	T	13.9	---	---	---	---	---	---	---	---	---	
KANSAS																																	
Concordia (U)	1375	965.8	-----	57	34	45.2	3.1	76	4	8	28	0	12	--	58	.84	-.31	.64	2	0	3.1	3	8.3	W	36	NW	5	11	8	11	5.2	67	
Dodge City	2594	927.2	1016.7	57	31	43.9	1.2	75	15	0	28	0	14	28	60	.44	-.43	.33	3	0	2.8	3	14.6	SSW	46	N	25+	11	12	7	4.7	72	
Goodland	3645	887.2	1016.7	55	24	39.2	1.7	80	10	1	28	0	25	25	65	.41	-.17	.31	2	0	6.1	4	11.3	WSW	*35	N	4	13	3	14	5.2	--	
Topeka	877	981.0	1017.2	59	34	46.5	3.9	75	4	13	28	0	17	32	62	3.27	1.68	2.53	7	2	5.0	5	11.9	SW	42	SW	17	13	6	11	5.2	62	
Wichita	1321	967.2	1016.6	61	36	48.5	3.4	77	4	14	28	0	10	33	60	2.39	-.66	2.16	6	2	2.4	2	13.4	S	49	NW	17	13	4	13	5.1	64	
KENTUCKY																																	
Lexington	979	982.8	1019.4	57	37	47.2	2.4	80	17	5	30	0	8	36	71	3.31	-.16	.97	12	0	3.4	3	9.6	S	---	---	---	8	9	13	6.0	--	
Louisville	474	998.9	1018.6	60	38	48.8	3.1	84	17	8	30	0	8	37	68	2.77	-.35	.91	11	0	5.5	6	10.1	S	33	NW	9	12	6	12	5.7	59	
LOUISIANA																																	
Baton Rouge	64	1016.6	1019.4	74	50	61.6	2.5	85	16	27	29	0	2	52	75	1.10	-3.63	.52	6	0	.0	0	7.7	N	---	---	---	6	11	13	6.4	--	
Lake Charles	12	1017.3	1018.7	72	53	62.4	3.1	84	17+	30	29	0	1	53	75	1.57	-2.77	.48	7	0	.0	0	8.7	N	*36	S	17	8	16	6.6	--		
New Orleans (U)	9	-----	-----	72	57	64.7	2.2	84	18	33	29	0	0	--	74	1.38	-2.63	.66	5	0	.0	0	7.0	---	20	NE	28	12	6	12	5.2	60	
New Orleans	3	1016.9	1019.1	72	54	63.2	2.3	83	18+	34	29	0	0	53	74	1.10	-2.99	.58	7	0	.0	0	10.5	NE	*38	NW	28	9	9	12	5.8	--	
Shreveport	252	1009.8	1019.1	69	45	57.0	.7	84	17+	25	29	0	3	45	68	3.75	-.15	1.70	7	3	.0	0	8.5	SSE	---	---	---	12	4	14	5.7	66	
MAINE																																	
Caribou	624	988.8	1011.6	37	22	29.6	.4	52	15	1	30	0	26	23	77	2.15	-.88	.83	11	0	20.5	10	13.3	W	*38	WNW	30+	5	5	20	7.6	--	
Portland	61	1010.2	1014.2	49	28	38.6	1.1	65	15	11	30	0	19	30	75	4.19	-.40	1.83	11	0	.2	T	11.1	W	29	SW	29+	10	6	14	6.0	49	
MARYLAND																																	
Baltimore (U)	14	-----	-----	57	42	49.2	.5	72	24+	16	30	0	4	--	2.31	-.65	1.03	7	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Baltimore	146	1013.3	1018.3	57	38	47.2	1.6	74	14	16	30	0	9	36	68	2.15	-.81	1.01	9	0	T	0	9.9	WNW	38	NW	30	10	10	10	5.6	59	
Frederick	294	-----	-----	55	36	45.3	-.1	73	14	15	30	0	11	--	2.45	-.50	1.29	7	--	T	T	---	---	---	---	---	---	---	---	---	---	---	---
MASSACHUSETTS																																	
Blue Hill Obs. (R)	629	991.1	1014.9	51	35	42.0	1.3	64	15	10	30	0	10	--	68	3.26	-.94	1.20	11	0	T	T	16.9	W	70	S	28	5	11	14	6.4	50	
Boston	15	1009.7	1014.3	54	39	46.0	2.2	67	15	18	30	0	7	34	64	3.35	-.14	1.00	12	0	.1	T	13.7	NW	*58	SW	28	8	8	14	6.4	59	
Nantucket	43	1014.8	1015.3	53	40	46.6	2.1	60	15	20	30	0	5	38	74	5.06	1.34	1.27	13	1	T	0	15.2	WNW	52	S	29	9	7	14	6.3	48	
Pittsfield	1153	971.9	-----	46	30	38.2	1.3	59	15+	6	30	0	18	--	---	3.93	-.05	1.51	16	0	5.4	3	---	---	---	---	---	---	---	---	---	---	---
Worcester	986	977.4	-----	49	33	40.8	1.2	62	15+	10	30	0	13	--	---	4.77	-.46	1.98	12	0	1.4	1	14.9	---	*38	W	30	6	10	14	6.4	--	
MICHIGAN																																	
Alpena (U)	587	990.2	-----	45	32	38.3	2.1	67	4	6	30	0	14	--	73	1.73	-.45	.59	13	0	4.2	3	11.7	W	43	SE	25	0	11	19	7.8	36	
Detroit	619	988.5	1015.6	51	35	42.9	2.8	67	18+	5	30	0	8	32	66	3.77	-.99	1.19	12	0	4.5	3	14.4	SW	46	W	5	5	10	15	6.7	47	
Detroit (Willow Run)	722	986.5	1015.3	50	33	41.9	2.2	68	18+	3	30	0	12	33	73	2.70	-.50	1.03	10	0	4.5	3	14.8	SW	*51	WSW	5	7	6	17	6.9	--	
East Lansing (U)	856	-----	-----	50	33	41.5	3.6	69	18+	4	30	0	13	--	---	1.55	-.75	.42	12	0	4.6	2	7.0	SW	19	NW	29+	---	---	---	---	36	
Escanaba (U)	594	989.2	-----	43	30	36.5	2.6	61	14	0	29	0	15	--	59	2.68	-.48	.93	11	1	2.1	2	11.6	---	43	S	8	7	6	17	6.8	41	
Flint	761	986.5	1014.9	49	31	40.0	2.4	68	18	2	30	0	15	32	75	4.11	-.77	.47	11	0	4.4	3	10.2	WSW	*27	SW	18+	3	9	18	7.4	--	
Grand Rapids	681	988.8	1014.8	49	32	40.6	3.0	70	18+	6	30	0	15	32	75	2.38	-.15	.66	14	2	8.6	4	12.7	S	40	NW	29	4	8	18	7.7	29	
Marquette (U)	677	983.7	-----	43	31	36.7	2.8	62	18+	3	29	0	11	--	67	2.53	-.59	.53	16	0	11.8	6	10.0	NW	50	SW	18	4	9	17	7.3	40	
Muskegon	627	991.2	1014.7	48	34	40.8	2.3	71	18+	8	29	0	12	32	74	4.31	1.67	2.00	15	2	12.0	7	---	---	---	---	---	---	---	---	---	---	---
Sault Ste. Marie	721	989.2	1012.4	42	28	34.6	3.1	61	18	-5	30	0	19	29	81	3.55	-.29	.74	16	1	13.2	6	11.8	ESE	*40	WNW	5	2	6	22	7.9	29	
MINNESOTA																																	
Duluth	1409	969.5	1012.0	37	21	29.1	2.1	61	2	-17	29	0	25	23	77	2.47	-.69	.81	12	0	3.6	2	16.2	WNW	67	S	18	6	7	17	7.0	43	
Intern'l. Falls	1179	968.5	1011.0	35	16	25.6	1.6	64	1	-27	30	0	30	18	74	2.82	1.65	.68	12	0	19.6	10	9.8	WNW	*25	SE	30+	4	4	22	7.8	--	
Minneapolis	830	979.0	1013.4	45	27	35.7	2.7	66	2	-5	29	0	17	26	69	1.01	-.43	.27	8	0	3.3	2	12.4	WNW	60	SW	17	7	9	14	6.1	49	
Rochester	1017	976.0	1014.2	45	25	35.0	2.5	64	3	-4	30+	0	22	26	69	.93	-.59	.62	7	0	.7	1	12.8	WNW	---	---	---	8	6	16	6.4	--	
St. Cloud	1034	973.9	1012.9	42	23	32.0	2.6	64	2	-10	29	0	25	23	73	1.75	-.38	.91	8	1	.5	T	---	---	---	---	---	---	---	---	---	---	---
MISSISSIPPI																																	
Jackson	305	1007.3	1019.5	69	45	56.8	1.6	83	17+	23	29	0	3	46	73	2.40	-1.65	.92	8	1	.0	0	6.4	SSE	28	N	28	10	5	15	5.9	49	
Meridian	294	1005.8	-----	70	44	56.8	2.7	84	16	26	29	0	4	--	2.00	-2.03	1.43	5	0	.0	0	---	---	---	---	---	---	---	12	6	12	5.4	--
Vicksburg (U)	234	1010.5	-----	68	49	58.4	1.6	83	16	27	29	0	2	--	4.29	-.22	2.70	8	3	.0	0	7.9	---	23	S	17	11	4	15	6.0	46		
MISSOURI																																	
Columbia	778	988.2	1017.3	58	37	47.4	4.5	78	17	11	30	0	10	34	63	3.18	-.57	2.14	10	2	5.0	5	12.1	S	40	NW	9	14	5	11	4.8	60	
Kansas City	741	980.1	1016.5	60	40	47.6	4.4	77	9	4	27	0	7	34	57	1.86	-.31	1.14	9	0	4.9	5	11.7	SSW	56	SW	17	14	6	10	5.0	66	
St. Joseph	809	980.4	-----	57	34	45.6	3.3	73	13	9	28	0	15	--	2.78	-.78	2.24	6	1	3.2	3	11.5	S	*60	SSW	17	12	7	11	5.0	--		
St. Louis RFC	465	-----	-----	59	42	50.3	4.3	78	13	11	30	0	6	--	---	3.96	1.24	1.37	8	--	3.9	4	---	S	65	SE	17	--	--	--	--	57	
St. Louis	552	997																															

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State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal			Highest	Date	Lowest	Date	No. of days	Max 90° F or above	Min 32° F or below	Average dew point	Average relative humidity		Total	Departure from normal		Greatest in 24 hours	No. of days		Snow, Sleet		Max depth on ground	Average hourly speed	Prevailing direction		Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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HEATING DEGREE DAYS

(Base 65° F.)

NOVEMBER 1958

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month
ALABAMA				KANSAS (Cont'd.)				NEW YORK				TEXAS (Cont'd.)			
Birmingham	319	426	532	Dodge City	623	913	971	Albany	745	1402	1386	Port Arthur	170	216	238
Mobile	170	207	247	Goodland	768	1249	1333	Binghamton	759	1513	1623	San Angelo	297	442	352
Montgomery	213	272	373	Topeka	553	851	1010	Buffalo	687	1227	1354	San Antonio	171	246	226
ARIZONA				Wichita	491	732	848	New York (U)	492	827	863	Victoria	122	173	131
Flagstaff	894	1675	1832	KENTUCKY				New York	478	800	824	Waco	208	279	295
Phoenix	124	128	245	Lexington	538	850	951	Rochester	707	1303	1375	Wichita Falls	308	432	524
Prescott	583	832	877	Louisville	492	744	862	Schenectady	700	1285	1404	UTAH			
Tucson	215	242	246	Pikeville (U)	444	655		Syracuse	683	1291	1256	Milford	930	1460	1404
Winslow	657	878	957	LOUISIANA				NORTH CAROLINA				Salt Lake City	778	1194	1240
Yuma	88	88	105	Baton Rouge	157	199	242	Asheville (U)	449	782	864	VERMONT			
ARKANSAS				Lake Charles	142	177	240	Cape Hatteras (R)	180	257	307	Burlington	810	1585	1617
Ft. Smith	361	516	575	New Orleans (U)	145	124	146	Charlotte	331	511	592				
Little Rock	314	439	525	New Orleans	119	147	176	Greensboro	698	1288	1411	VIRGINIA			
Texarkana	263	377	386	Shreveport	261	346	358	Raleigh	355	595	603	Lynchburg	444	742	816
CALIFORNIA				MAINE				Wilmington	221	349	361	Norfolk	282	421	569
Bakersfield	264	271	314	Caribou	1053	2316	2356	Winston-Salem	393	626	702	Richmond	409	645	741
Bishop	529	710	872	Greenville (U)	985	2169		NORTH DAKOTA				Roanoke	436	722	826
Blue Canyon	538	872	1184	Portland	782	2027	1610	Bismarck	1066	1874	1989	WASHINGTON			
Burbank	140	148	256	MARYLAND				Devils Lake (U)	1167	2154	2235	Olympia	652	1264	1460
Eureka (U)	373	1313	1525	Baltimore (U)	466	713	725	Fargo	1054	1820	1989	Seattle (U)	573	957	1087
Fresno	313	336	431	Baltimore	528	841	910	Grand Forks	1115	2036		Seattle-Tacoma	640	1177	1382
Los Angeles (U)	80	82	198	Frederick	585	992	911	Pembina	1170	2057		Spokane	868	1561	1637
Los Angeles	64	64	396	MASSACHUSETTS				Williston (U)	1104	1939	2038	Stampede Pass (R)	1069	2430	2628
Mt. Shasta (R)	669	1121	1387	Blue Hill Obs. (R)	691	1388		OHIO				Tatoosh Island (R)	569	1669	1832
Oakland	269	399	730	East Lansing (U)	547	1023	1017	Akron	680	1237	1216	Walla Walla (U)	632	1036	1076
Red Bluff	237	326	378	Nantucket	544	1080	1154	Cincinnati (U)	474	710	831	Yakima	821	1480	1410
Sacramento (U)	257	279	413	Pittsfield	798	1662	1687	Cincinnati	561	895	1026	WEST VIRGINIA			
Sacramento	310	337	477	MICHIGAN				Cleveland	608	1031	1125	Charleston	511	855	886
Sandberg (R)	469	691	702	Alpena (U)	793	1580	1744	Columbus	632	1029	1107	Elkins	674	1281	1300
San Diego	93	94	241	Detroit	657	1097	1232	Dayton	639	1040	1096	Huntington (U)	490	781	794
San Francisco (U)	205	655	841	Detroit (Willow Run)	686	1137	1258	Sandusky (U)	614	989	1077	Parkersburg (U)	491	903	928
San Francisco	225	334	873	East Lansing (U)	701	1174		Toledo	681	1188	1257	WISCONSIN			
San Jose	230	268	411	Escanaba (U)	849	1670	1892	Youngstown	675	1275	1189	Green Bay	856	1566	1733
Santa Maria	251	445	722	Grand Rapids	722	1274	1471	OKLAHOMA				La Crosse	818	1318	1551
COLORADO				Marquette (U)	843	1714	1868	Tulsa	410	585	648	Madison	814	1360	1544
Alamosa	1053	2011	2207	Muskegon	716	1286	1483	OREGON	345	509	632	Milwaukee	768	1278	1445
Colorado Springs	740	1285	1352	S. Ste Marie	908	2013	2177	Astoria	552	1222	1270	WYOMING			
Denver	724	1190	1332	MINNESOTA				Burns (U)	806	1482	1673	Casper	924	1620	1796
Grand Junction	726	1066	1161	Duluth	1070	2187	2140	Eugene	531	998	1183	Cheney	854	1608	1787
Pueblo	707	1081	1228	Internat. Falls	1178	2373	2490	Meacham	904	1750	1992	Lander	1005	1730	1956
CONNECTICUT				Minneapolis	871	1398	1601	Medford	576	901	1027	Sheridan	930	1701	1842
Bridgport	590	1040	1045	Rochester	894	1560	1718	Pendleton	686	1113	1174	ALASKA			
Hartford	680	1302	1198	St. Cloud	981	1764	1948	Portland (U)	516	776	926	Anchorage	1357	3553	3220
New Haven	606	1106	1137	MISSISSIPPI				Roseburg	472	860		Annette	800	2043	2126
DELAWARE				Jackson	276	359	379	Salem	539	947	1071	Barrow	1865	5654	6055
Wilmington	565	926	914	Vicksburg (U)	224	304	319	Sexton Summit (R)	662	1283	1496	Barter Island	1837	5424	
DIST. OF COLUMBIA				MISSOURI				PENNSYLVANIA				Bethel	1410	3848	3767
Washington (U)	451	682	773	Columbia	516	792	984	Allentown	667	1166	1154	Cold Bay	933	3146	
Washington	447	672	793	Kansas City	455	658	905	Harrisburg	596	994	1007	Cordova	1024	3206	3000
FLORIDA				St. Joseph	576	869	1000	Philadelphia (U)	494	805	768	Fairbanks	1910	4484	4077
Apalachicola (U)	76	97	171	St. Louis (U)	437	635	810	Philadelphia	547	907	889	Juneau	928	2731	2807
Daytona Beach	18	27	83	St. Louis	482	739	878	Pittsburgh (U)	540	918	966	King Salmon	1332	3531	
Fort Myers	0	0	25	Springfield	483	782	933	Reading (U)	568	938	935	Kotzebue	1740	4574	4500
Jacksonville	59	89	164	MONTANA				Scranton	711	1346	1215	McGrath	1802	4474	4137
Key West	0	0	0	Billings	848	1468	1595	Williamsport	693	1225	1193	Nome	1519	4281	4191
Miami	0	0	0	Glasgow	1167	2004	1948	RHODE ISLAND				St. Paul	927	3456	3449
Miami Beach	0	0	0	Great Falls	944	1698	1765	Block Island	535	999	1036	Yakutat	973	2916	2918
Orlando	9	15	61	Havre (U)	1017	1826	1915	Providence	595	1126	1186				
Pensacola (U)	115	141	195	Helena	1018	1955	2038	SOUTH CAROLINA							
Tallahassee	118	151	240	Kalispell	1016	2092	2085	Charleston (U)	114	180	248				
Tampa	2	5	60	Miles City	965	1578	1695	Charleston	183	296	322				
West Palm Beach	0	0	7	Missoula	964	1944	1987	Columbia	249	400	420				
GEORGIA				NEBRASKA				Florence	221	357	441				
Athens	292	440	495	Grand Island	760	1174	1281	Greenville	286	452	552				
Atlanta	268	385	511	Lincoln (U)	640	938	1137	Spartanburg	308	492	557				
Augusta	239	374	341	Norfolk	809	1260	1464	SOUTH DAKOTA							
Columbus	221	307	404	North Platte	840	1375	1409	Huron	895	1470	1622				
Macon	176	254	343	Omaha	678	1011	1207	Pierre	872	1402					
Rome	394	574	583	Scottsbluff	821	1351	1460	Rapid City	826	1402	1640				
Savannah	144	228	263	Valentine	854	1451	1518	Sioux Falls	901	1426	1648				
IDAHO				NEVADA				TENNESSEE							
Boise	735	1182	1286	Elko	876	1634	1724	Bristol	488	774	873				
Lewiston	707	1197	1286	Ely	903	1701	1749	Chatanooga	403	585	670				
Pocatello	867	1474	1543	Las Vegas	338	380	405	Knoxville	412	586	710				
ILLINOIS				Reno	782	1334	1440	Memphis	344	493	575				
Cairo (U)	428	602	681	Tonopah	705	1048	1246	Nashville	420	623	647				
Chicago	658	985	1205	Winnemucca	790	1466	1527	TEXAS							
Chicago University	646	977		NEW HAMPSHIRE				Abilene	319	458	453				
Moline	685	1092	1253	Concord	811	1582	1636	Amarillo	546	816	871				
Peoria	652	1010	1195	Mt. Washington Obs.	1368	4271		Austin	184	258	244				
Springfield	602	944	1127	NEW JERSEY				Brownsville	53	85	59				
INDIANA				Atlantic City (U)	476	781	766	Corpus Christi	93	131	113				
Evansville	529	827	844	Newark	520	880	951	Dallas	225	303	352				
Ft. Wayne	691	1152	1260	Trenton (U)	540	923	922	Del Rio (U)	184	252					
Indianapolis	640	1043	1090	NEW MEXICO				El Paso	343	479	460				
South Bend	683	1146	1289	Albuquerque	562	846	858	Ft. Worth	247	329	357				
IOWA				Clayton	648	1039	1064	Galveston (U)	102	137	131				
Burlington	664	1050	1184	Roswell	471	726	665	Galveston	107	139	132				
Des Moines	694	1107	1269					Houston (U)	133	185	162				
Dubuque	805	1337	1511					Houston	145	193	188				
Sioux City	790	1194	1443					Laredo	150	250	250				
KANSAS								Lubbock	446	667	688				
Concordia (U)	585	871	1019					Midland	338	509					

Data from airport unless otherwise specified.
 U indicates Urban, R indicates Rural, sites.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
ALASKA Adak and the Aleutian Chain	Dur- ing month								Wind	Large Aleutian low. Gusts of 100 m.p.h., reported by this station on 2d, but no reports of damages. Winds in excess of 60 m.p.h., reported on 3d, 6th, 15th, 19th, 20th, 27th, and 28th. On 19th, gusts at Shemya reached 90 m.p.h.
MASSACHUSETTS NEW HAMPSHIRE and VERMONT	2-3	P.m.-a.m.				1	4	1	Snow, sleet, and glaze	One of the earliest snowstorms of record, with amounts ranging up to 3 to 6 inches in Berkshires. Sleet and glaze over much of area added to large toll of traffic accidents. Trees and wires toppled locally in western Massachusetts from weight of snow and ice. Automobile crushed at Lenox, Mass., by falling tree. 1 injury resulted from another accident in Lenox.
OREGON Entire State	3	Afternoon -evening			1	8	6	4	Wind	Winds which in gusts reached speeds of 71 m.p.h., at Portland, 75 m.p.h., at Astoria, 80 m.p.h., near The Dalles, and 90 m.p.h., at Columbia Lightship felt in practically every area of State in form of interruptions to telephone and electric services, numerous roofs blown off, damage from falling trees, damage to outdoor signs, fences, small buildings, and to at least 2 milk farms when cages demolished by winds, liberating large numbers of these animals. 1 hunter killed when tree fell across his tent. High waves created by wind damaged boats not only at coastal points but on lakes well inland. Three major highways blocked for a time by hundreds of fallen trees. In State's forests, millions of board feet of marketable timber blown down for one of the heaviest losses in some forests in recent times. Stored hay scattered; some fruit trees uprooted. Storm moved eastward.
IDAHO Northern counties	3-4	Evening- early a.m.					5		Wind and rain	High winds struck during evening, reaching peak gust of 76 m.p.h., at 11:30 p.m., and continuing at 50 m.p.h., as late as 2 a.m. Power outages numerous from Shoshone County to Camas Prairie, with telephone service disrupted at many points. Rains accompanying windstorm flooded basements in Moscow and Genesee and washed dirt and rocks onto highways near Coeur d'Alene. Roof damage widespread and plate-glass windows destroyed by wind at Moscow and Lewiston. Most severe damage in Lewiston and vicinity. At Airport, 1 hangar demolished and 2 others damaged and almost all of 2 dozen planes on field damaged. Damage at Airport alone estimated at \$100,000 while insurance claims for more than \$30,000 filed from city residents. Nylon shelter for some equipment of radar station on Cottonwood Butte torn to shreds at estimated damage of \$10,000. TV translator station on Lewiston Hill severely damaged.
WASHINGTON Entire State	3-4	Evening 3d- early morning 4th			2		6		Wind and rain	One of most damaging windstorms in recent years occurred as center of intense storm entered western Washington in vicinity of Willapa Bay and moved eastward with center passing near Olympia, Mt. Ranier, and across southern part of eastern Washington. Northerly winds of 45 to 65 m.p.h., recorded in Puget Sound area north of Olympia and southwesterly winds of 60 to 80 m.p.h., recorded south of Olympia. Peak gust of 161 m.p.h., reported at radar installation located on mountain at approximately 2,000 feet in elevation in vicinity of Naselle near Pacific Ocean and mouth of Columbia River. 2 persons electrocuted by fallen powerlines in western Washington. Trees blown down, damaging utility lines and buildings and blocking roads in some localities. Farm buildings damaged, windows broken, and several thousands of telephones out of service and powerlines suffered rather extensive damage. Unusually large number of small boats damaged. Several small airplanes in both eastern and western Washington damaged by wind. Preliminary aerial surveys made by timber companies indicate that possibly 400 to 500 million board feet of timber blown down, many trees being 200 to 400 years old. Heavy rain associated with storm damaged bridges and roads in Rainier National Park area.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
WYOMING Sheridan, Sheridan County	4	7:24 a.m.							Wind	Wind blew trees over, damaged aeri-als, broke windows, and broke powerlines by blowing poles down.
WYOMING Worland, Washakie County	4	Daytime				1			Wind	Blew man off roof.
	4									Minor storm also reported near Buffalo, Wyo.
SOUTH DAKOTA Statewide	4-5	Afternoon 4th- morning 5th					4		Wind	Most damage in southeastern counties. Walls of 2 cement buildings under construction toppled in Sioux Falls. Highest winds estimated at 60 m.p.h.
MINNESOTA Minneapolis- St. Paul, Hennepin and Ramsey Counties	5	A.m.					3	1	Wind	Strong wind with gusts near 45 m.p.h., blew down numerous construction fences, TV aeri-als, and many trees throughout Twin Cities and suburbs. Storm moved northeastward.
ILLINOIS Extreme northeastern portion	5	Morning			1				Wind	Strong cold front moved southeastward passing Chicago at 10:28 a.m. Scattered wind damage in Chicago, Aurora, Evanston, and neighboring areas. Fisherman drowned at Channel Lake in Lake County as wind upset boat.
	5									Minor storms also reported in western and southern Iowa; and at Altus, Okla.
ALASKA Cordova	5-6	9 p.m. 5th- 1 a.m. 6th	100	*150			3	1	Wind	Large low from Aleutians. Same storm indicated above for Adak and Chain. Low was in process of filling but still possessed considerable energy. All damages reported were in city of Cordova. Small plane damaged at city airport; Alaska Steamship dock damaged when winds smashed vessel into dock structure. Winds reached 55 m.p.h., in Cordova area.
MICHIGAN Entire State	5-6	Evening 5th- early morning 6th				1		1	Wind	Sustained high winds over entire State, with brief period of thunderstorm in northern Lower Michigan. Wind speeds measured at 60 to 80 m.p.h., at Soo Locks between 10:30 p.m., and 11:30 p.m. Widely scattered damage to trees, automobiles, plate glass, TV antennas, etc.
WASHINGTON Western portion	6-11							4	Rain	Heavy rainfall along western slope of Cascades and runoff from melting snow in higher elevations resulted in nearly all rivers in western Washington, with headwaters in higher elevations of Cascades, reaching flood stage or above between 10th and 15th. Several highway bridges damaged by log jams and highways washed out in a few localities. For most part, flood damage rather light, being limited to flooding of low farm and pasture lands. Mud slide caused rather extensive damage at construction project on Skagit River.
FLORIDA Miami, Dade County	8	2:19 p.m.			0	0			Funnel aloft	Reported by pilot 5 miles west of Miami Airport.
OREGON Northwestern portion	9	Most of day	75- 100	*50- 60			4	2	Rain	Heavy rains along north coast and Willamette Valley flooded streets and basements briefly in towns of Willamette Valley when capacity of storm sewers was locally exceeded. At Astoria, these started slides which caused some damage to cars and construction work. Storm moved eastward.
NORTH CAROLINA	9	Evening					4		Wind	Fast-moving cold front caused strong winds throughout North Carolina, with minor damage scattered over State. Trees blown down, plate-glass windows broken, roofs and antennas damaged, signs blown down, and power and communications facilities damaged. Storm moved eastward.
PENNSYLVANIA Irwin, West- moreland County	9						4	1	Wind	Strong winds blew down motel under construction.
TENNESSEE Mountain City and vicinity, Johnson County	9								Wind	Roofing blown off houses, TV antennas blown down, and power disrupted.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
	9									Minor storm also reported at St. Louis, Mo.
CALIFORNIA Point Loma, (northwest of), San Diego County	10	10:34 a.m.			0	0	1	1	Waterspout	Waterspout observed by pilot of Navy aircraft in area 5 to 10 miles northwest of Point Loma.
	10									Minor storm also reported near Sinclair, Wyo.
NEVADA Las Vegas, Clark County	11	P.m.			1		5		Rain and electrical	Flooding, as result of heavy rains, did con- siderable damage to residences, roads, utility lines, automobiles, etc. Man died of heart attack while clearing debris from his home.
	11									Minor storm also reported in northern and central New England.
TEXAS Kermit (12 miles northwest of), Winkler County	13	6:55-7 p.m.			0	0			Funnel aloft, wind, and hail	Storm moved eastward.
TEXAS Big Spring (18 miles north of), Howard County	13	9:20-9:44 p.m.			0	0	1	1	Tornado, wind, and rain	Winds to 52 m.p.h., heavy rainstorm, moved east-northeastward.
TEXAS Big Spring (7 miles north- west of), Howard County	13	9:22 p.m.			0	0			Funnel aloft	
TEXAS Big Spring, Knott, and Fairview areas, Howard County	13	Night	120	*60					Hail, wind, and rain	Damage to plate glass, powerlines, TV antennas in Big Spring. In northwestern part of county, swath 3 miles wide and possibly several miles long struck by brisk hailstorm, damage to cotton and grain. Heavy washing of fields by rain. Airport Weather Office recorded peak wind of 45 m.p.h. Strong wind changed from south-southeast to west to north-north- west between 9:40 and 10:20 p.m.
NEW MEXICO Southeastern counties	13								Thunderstorms	Unconfirmed reports of tornadoes in Guadalupe Mountains. Unable to obtain any confirmation on these reports. Open country with very few residents. However, severe thunderstorms with scattered hail reported over this area in connection with passage of cold front on this date and it seems quite possible that some small funnel clouds developed.
	13									Minor storm also reported near Andrews, Tex.
TEXAS Lenorah (near), Martin County	13-14	10 p.m.- 2 a.m.					4		Electrical, wind, and rain	Five 500-barrel oil tanks destroyed with con- tents by fire started by lightning during strong wind-and rainstorm.
TEXAS Harris County	14	9:15-10 a.m.			0	0			Funnel aloft and tornado (suspected)	Suspected tornado 15 miles north of Houston at 9:15 a.m. Funnel aloft 12 miles southwest of Houston at 10 a.m.
LOUISIANA Baton Rouge, East Baton Rouge Parish	14	2:10 p.m.	2	20	0	0	4	1	Tornado	Several homes unroofed, trees stripped, ga- rages smashed; funnel observed. Tornado moved northeastward.
LOUISIANA Cotton Valley (10 miles south of), Webster Parish	14	5:30 p.m.	4	30	0	1	4	1	Tornado	4 homes demolished; 5 buildings unroofed; trees blown down. Tornado moved northeastward.
ARKANSAS Conway County	14	7 p.m.	12		0	0	4	1	Tornado	Tornado moving northeastward struck Ada Valley community, causing \$8,000 damage to house and barn, then went aloft and next reported at Overcup community where separate funnels sighted. Damage at this point estimated at \$5,000.
ARKANSAS Fort Smith, Crawford County	14	8:20 p.m.	** 200	100			4	1	Wind	Damage confined to 3-block area. Principal damage to roofs, television antennas, and trees.
MISSISSIPPI Lambert, Quit- man County	14	11 p.m.	2	30	0	0	4	2	Tornado	Several homes demolished; many unroofed, in- cluding hotel; plate-glass windows blown out and trees uprooted. Tornado moved north- eastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
WYOMING Extreme western portions	14-15								Snow	Minor storm also reported near Sinclair Wyo. Very heavy, wet snow caused breaks in power- lines which resulted in large loss of food under refrigeration; also considerable loss of man-hours of work because such businesses as filling stations unable to operate.
SOUTH DAKOTA Northwestern counties	14-16	Morning 14th- evening 16th			1		3		Snow and glaze	Precipitation fell alternately as snow and freezing rain, glazing highways which result- ed in fatal collision. Heaviest snow fell in Harding and Perkins Counties. 16 inches re- ported in Lemmon, and 6 to 11 inches in sur- rounding area. Blizzard conditions stopped traffic on 16th.
CALIFORNIA Entire State	14-16				4		5		Wind, hail, rain, bliz- zards, cold, and dust	Strong, cold front moved southward over State on 14th, with strong winds, light rain, hail, blizzards, and freezing temperatures accompan- ing and following front. Strong winds in Monterey Bay drove drifting Navy LCM ashore; 2 crewmen rescued. Several small craft torn from moorings and washed ashore. A \$10,000 pleasure craft badly damaged. Snow fell on low elevations in Sierras, closing 2 trans- Sierra highways, and snow or hail whitened higher hills of San Francisco Bay area and coastal ranges. Blizzard conditions prevailed in mountains of southern California, closing 2 major highways temporarily. Damage to trees, powerlines, signboards, and television antennas from strong, gusty winds widespread in all southern areas. Dust and sandstorms in desert regions damaged numerous automobiles. Strong winds in harbor and coastal waters of southern California damaged many small boats. Barge loaded with concrete pipe capsized off Laguna Beach; 70-foot schooner capsized in Catalina Channel, with 3 of crew presumably lost; 2 fishermen swam ashore at Portuguese Bend from capsized 22-foot fishing boat; 3 men rescued from capsized boat off Cabrillo Beach, fourth man presumably lost; 5 persons rescued from wrecked cabin cruiser at Point Loma; \$50,000 fishing boat broke up in surf attempting to enter Kings Harbor at Laguna Beach, crew res- cued by beach life guards. Locally violent, gusty winds broke plate-glass windows in North Hollywood market, and unroofed nearby storage building; demolished automobile paint and body shop at National City; destroyed film producer's tent city near Indio; demolished newsstand at Montebello. Damage to crops from freezing temperatures following front light in northern California, but heavier in southern areas where more susceptible crops were in progress. Hail caused considerable damage to outdoor flower crops in Oceanside - Carlsbad areas.
UTAH Northern portion	14-16				5	1	3	3	Snow	Up to 3 feet of snow in mountains and up to 15 inches at lower elevations temporarily blocked a number of highways and downed utility lines in some areas. One woman killed in accident on snow-packed U. S. 40 in Tooele County; and a number of other automobile accidents occur- red as result of storm. 25 sheep and 2 calves died in Tooele County. Four Air Force men died of exposure in Huntsville area after parachuting safely from disabled airplane.
ARKANSAS Foreman, Little River County	15	Noon			0	0			Funnel aloft and wind	Funnel cloud observed by several persons. Scattered light wind damage to windows, signs, awnings, and roofs.
ARKANSAS Bentonville (3 miles southwest of), Benton County	15	Noon						1	Wind	Barn roof destroyed. Two cars damaged by debris.
ARKANSAS Heber Springs (5 miles south of), Cleburne County	15	3:45-4 p.m.	1/2	10	0	0	3	1	Tornado	Two houses damaged. Tornado moved northeast- ward.
MISSOURI Thayer, Oregon County	15-17						4		Rain	Over 10.50 inches of rain caused flooding on Warm Fork, and several other creeks. Bridges out, roads damaged.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Property (exclusive of crops)	Crops	Character of storm	Remarks
					Killed	Injured				
NORTH DAKOTA Entire State	15-17		350				6	1	Sleet, wind, and snow	Damage mostly due to freezing rain and sleet to telephone and power companies. About 300 poles and many wires downed. Many schools closed due to blizzard conditions. Persons stalled on highways. Storm moved east-northeastward.
ARIZONA Tucson area, Pima County	16	Morning			3		3		Snow	Three boys perished in snow. Some limb breakage in citrus, but damage light.
INDIANA Evansville (near), Vander- burgh County	16	2:45 p.m.			0	0	3	1	Tornado	Evansville substation observer reported seeing funnel cloud form near Uniontown, Ky., and move northeastward above ground. Minor damage about 10 miles west of Evansville a little later apparently related to funnel cloud.
MISSOURI Maryville, (10 miles north of), Nodaway County	16	6 p.m.	2	100	0	0	3		Tornado	Buildings on 2 farms damaged. Tornado moved northward.
MISSOURI Fremont, Carter County	16	8-9 p.m.					3		Rain	11 inches of rain fell in a little over an hour. Several families along Big Barnes Creek had to flee from their homes. Party of 15 hunters camped along this creek almost lost their lives in flash flood. Several cars washed downstream.
OKLAHOMA Hollow, Craig County	16	P.m.	** 300	Nar- row	0	0	2	1	Tornado	Witness reported small funnel dipped down momentarily and damaged some trees near Hollow.
	16									Minor storms also reported at Esther, Flat River, and Perryville, Mo.
KANSAS	16-17	11 p.m.- noon				4	4		Blizzard, sleet, glaze, rain, hail, and wind	Many parts of Kansas affected by severe weather in connection with cold front passage across State. Heavy snow and sharp drop in temperature began in northwest about 10 to 11 p.m., on 16th. By morning of 18th, 4 to 12 inches of snow covered western third with much of it badly drifted by high winds. Thunderstorms in extreme east beginning just after midnight of 17th furnished locally heavy amounts of 3 to 5 inches of rain by morning. Sleet and light glazing reported from Liberal northeastward through north-central counties. A number of traffic accidents resulted from poor visibility in blowing snow and from slick roads. Two persons injured 6 miles west of Meade in 5-car accident. During morning of 17th, winds caused scattered light damage to signs, TV Antennas, trees, roofs, and transmission lines in eastern third. Boy injured at Coffeyville when portion of a grain elevator blown down. At Augusta, woman injured when door blew off its hinges and struck her. Storm moved southeastward.
MISSOURI Livingston and Daviess Counties	16-17						5		Rain	Flooding on Grand River and many small streams.
	16-17									Minor storm also reported at Yuma, Ariz.
KANSAS Opolis, Craw- ford County	17	5 a.m.			0	0			Tornado	On east side of Opolis small tornado demolished several buildings and snapped off trees and a dozen telephone poles.
TEXAS High Point- Carey vicinity, Childress County	17	5 a.m.	5	*1			3		Wind	Freak wind damaged 2 porches, broke windows, sucked out small pieces of furniture from house, and destroyed chickenhouse and garage. Trees uprooted. TV antennas downed. Large cotton trailer destroyed. Winds clocked to 82 m.p.h., at Childress where only minor damage. Storm moved northeastward.
OKLAHOMA Southeastern two-thirds	17	5 a.m.- noon			1	12	6	1	Wind and rain	Strong winds, reaching 80 to 100 m.p.h., and possibly more, caused general area-wide damage and destruction. One woman killed when her chicken house destroyed. Bryan County couple injured by flying debris as they tried to reach their storm cellar and another couple near Lawton injured in the same way. Child in Comanche County and 2 children in Canadian County injured by windows being blown in. School policeman injured in Oklahoma City when protective shelter blown over on him as he tried to protect some school children. Woman blown 15 feet through air and slammed against

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
OKLAHOMA (Cont'd.)										telephone pole in Oklahoma City. Flag-pole sitter injured in Tulsa when pole blown down. Two persons injured in Blackwell, one by fly- ing debris and the other when a door blew shut. Damage and destruction ranged from business structures, homes, and barns to signs, win- dows, trees, and TV antennas. Some of the greatest losses from straight wind damage included: about \$250,000 to 3 schools, businesses, houses, etc., at Blackwell, in Kay County; about \$65,000 to business, dairy, and several homes near Lawton; about \$16,000 to installations at Fort Sill; and about \$60,000 to Oklahoma University Biological Station at Willis, Marshall County. Storm moved northeastward.
OKLAHOMA Lenapah, Nowata County	17	5:30 a.m.			0	0	3	1	Tornado (suspected)	Suspected tornado caused heavy damage to 2 farmsteads just east of Lenapah. 2 x 4 board driven through wall of house narrowly missing a sleeping man.
TEXAS Weinert, Haskell County	17	6 a.m.			0	7	5		Tornado	Frame house destroyed, TV antennas downed, 3 injured persons hospitalized. Cotton trailers overturned and wrecked; storage building partially unroofed. Storm moved northeast- ward.
TEXAS Snyder area, Scurry County	17	6 a.m.	360	*180			4		Wind	Winds to 70 m.p.h., damaged hangar and 9 planes inside. At nearby Hermleigh, new poultry house unroofed. Storm moved eastward.
TEXAS Jones and Clyde Counties	17	6 a.m.					4		Wind	Warehouse at Hamlin damaged. Near Clyde, barn unroofed. Storm moved eastward.
TEXAS Abilene (south- west of), Tay- lor County	17	6 a.m.	10	*3			3		Wind	Winds to 75 m.p.h., blew open locked doors, moved 1 house, damaged carports and many small buildings. Storm moved eastward.
TEXAS San Angelo, Tom Green County	17	6 a.m.	8	*2		5	4		Wind	Trailer house overturned by 70-m.p.h., wind; phone poles broken.
OKLAHOMA Prairie Hill, Jackson County	17	6:15 a.m.	15	100	0	0		1	Tornado, rain, and wind	Tornado caused considerable damage to at least 6 farmsteads along path from just north of Eldorado to 4 miles east of Duke. Church and parsonage destroyed in Prairie Hill. Strong winds caused general damage in area. Storm moved northeastward.
TEXAS Throckmorton, Throckmorton County	17	6:31 a.m.	1/4	10	0	0	4		Tornado and electrical	Dipped several times. Tin ripped from roofs on south and west sides, paint sucked up from bucket and splashed on wall, about 40 TV antennas blown down facing eastward, wood and frame 2-story hotel moved on foundation. Rapid movement, lasted less than 45 seconds. Diam- eter estimated 30 to 40 feet. Frequent light- ning ahead of front and before tornado hit. No thunder or lightning during passage. Storm moved northeastward.
TEXAS Olney, Young County	17	6:45 a.m.			0	1	5		Tornado	Roof ripped off school building, many other roofs damaged, windows broken, TV antennas twisted, trees uprooted, and fences downed. During fast-moving cold front passage. Approxi- mately 120 property damage claims. Storm moved northeastward.
OKLAHOMA Apache, Caddo County	17	7 a.m.			0	0		1	Tornado (suspected)	At least 6 farmsteads received heavy damage along path from 5 miles southwest to just northwest of Apache. Storm moved northeast- ward.
TEXAS Lake Leon and Strawn, Palo Pinto County	17	7:10 a.m.			0	0	4		Tornado	Damaged boat dock, destroyed another at lake; in southwestern part of city, heavy damage to business and home roofs, windows, TV antennas, powerline poles, and trees; several garage doors blown off. Wind estimated at 60 to 70 m.p.h., separated 2 rooms from rest of house about 5 inches. 55-foot shed torn from steel and concrete foundation, pieces carried 200 feet. Storm moved eastward.
TEXAS Wichita Falls (4 miles west of), Wichita County	17	7:15 a.m.			0	0	4		Tornado, wind, rain, and funnel aloft	During strong windstorm, struck large new barn, scattered sheets of metal along highway for several miles. Storm moved northeastward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

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TEXAS Wichita Falls and Iowa Park, Wichita County	17	7:15 a.m.			0	10	5		Wind	Damaged about 75 homes, 15 trailer homes, high school, and numerous outbuildings. 368-foot radio antenna and 2 others crashed to ground; powerlines downed. At Iowa Park fairgrounds, damage covered 4-block area. Storm moved eastward.
TEXAS Burkburnett, Wichita County	17	7:30 a.m.			0	0	5		Wind	Extensive damage to about 100 homes and outbuildings; two 40-foot smoke stacks blown down tool shed blown away, trees uprooted, TV antennas and powerline poles damaged. Pontiac Company building total loss. Storm moved eastward.
OKLAHOMA Walters area, Cotton County	17	7:35 a.m.	10	50	0	4	4	1	Tornado, wind, and rain	Tornado moved from 3 miles east of Cookietown to 3 miles east of Walters. Four farmsteads destroyed or severely damaged. A mother and 3 children narrowly escaped death when their home was picked up, carried 50 feet and smashed to ground. The mother and 2 children injured. At another farm, part of house broken off and carried into field. A man in that part of the house was injured. High winds estimated at 80 m.p.h., caused widespread general damage in area. Small plane badly damaged and hangar wrecked at Walters Airport. Storm moved northeastward.
OKLAHOMA Garfield and Kay Counties	17	8:08- 8:30 a.m.	40		0	0		1	Tornado, wind, rain, and hail	Tornado caused heavy damage to buildings, homes, and many farms along path from Fairmont, just north of Garber and Billings, just west of Tonkawa to Blackwell. Authorities in Blackwell indicated damage there mostly from straight winds. Storm moved northeastward.
OKLAHOMA Davis, Mur- ray County	17	8:30 a.m.	3	300	0	0	4	1	Tornado, wind, and rain	Tornado caused extensive damage on 3 farms 2 miles southwest of Davis. Witness saw huge cylinder, rotating clockwise. Strong winds in area caused widespread general damage. Storm moved northeastward.
OKLAHOMA Stratford to Oil Center, in Garvin and Pontotoc Counties	17	8:30 a.m.	7	500	0	0		1	Tornado, wind, and rain	Several farmsteads severely damaged. Strong winds caused extensive general damage in area. Storm moved northeastward.
TEXAS Ft. Worth area and Smithfield, Tarrant County	17	8:45-10 a.m.				1	5		Wind	At Ft. Worth, wind gusts to 92 m.p.h., during fast-moving cold front. Eleven small planes overturned, 3 severely damaged. Roof of hangar torn off, dumped onto parking lot, damaging several cars. TV antennas, electric wires, and trees damaged. At Smithfield, school so badly damaged it had to be razed. Storm moved eastward.
OKLAHOMA Dickson, Carter County	17	8:47 a.m.	** 200	20	0	0	4	1	Tornado	Small tornado moving northeastward dipped down and destroyed poultry farm.
TEXAS Gainesville, Cooke County	17	8:50 a.m.	2	440	0	1	5		Wind and funnel aloft	Major damage to 15 buildings, minor damage to 125 buildings, TV antennas damaged. Storm moved northeastward.
TEXAS Sherman area, Grayson County	17	9 a.m.	100	*10			5		Wind	"Blue norther", strong winds recorded to 84 m.p.h., damaged hundreds of windows and roofs, TV antennas and trees. Heavy crane overturned, boom wrecked, 2-ton piledriver lost in lake. At Perrin Air Force Base, 4 heavy planes ripped from moorings, and overturned; small building destroyed. Base shop badly damaged. Storm moved southward.
TEXAS Lake Texoma, Grayson County	17	9:15 a.m.			0	0	3		Tornado	5 aluminum boats, boat dock, and roofs of buildings damaged at 2 lake resorts.
OKLAHOMA Bowlegs, Seminole County	17	9:23 a.m.	15	300	0	15	5	1	Tornado, wind, and rain	Tornado destroyed 2 churches and 8 homes and damaged a school, church, 2 businesses, and 35 other dwellings in Bowlegs. Farm dwellings and oil field property destroyed or damaged from southwest to northeast of city. Two persons died of heart attacks during storm, only one person hospitalized and the other injuries were from cuts and bruises. Very strong winds caused extensive damage throughout area. Storm moved northeastward.
TEXAS Gunter and McKinney, Grayson and Collin Counties	17	9:25 a.m.	100	*5		1	5		Wind	Roofs over entire town and for area 4 or 5 miles wide damaged; some damage to business buildings and houses. Woman hospitalized when small building she was in turned over. Several trailer houses overturned. Storm moved northeastward.

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STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

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KANSAS Maple City, Cowley County	17	9:30-10 a.m.	10	220	0	0	4		Tornado	Damage began a few miles southwest of Maple City, Cowley County, extended north of town and then east, funnel dissipated near junction of Highways 15 and 38. Homes, barns, telephone lines, and trees damaged. Temperature in nearby Arkansas City changed as follows: 8 a.m., 55°; 8:45 a.m., 76°; 9 a.m., 57°.
KANSAS Grenola area, Elk County	17	9:45-10 a.m.	10	880	0	0	4		Tornadoes	Tornado damaged roofs, barns, sheds, and trees from 5 miles southwest of Grenola, Elk County, to about 5 miles northeast of town. Second tornado dipped momentarily 4 miles west and north of Grenola, damaging power house on an oil lease. Tornadoes moved northeastward.
TEXAS Wylie, Collin County	17	9:50 a.m.	100	*8			4		Wind and rain	Many roofs damaged, windows broken, trees uprooted, and TV antennas downed. Small building picked up; damage to several barns and farm buildings. Storm moved southward.
KANSAS Leavenworth, Leavenworth County	17	10:20- 10:25 a.m.	2	100	0	0	3		Tornado	Tornado hit ground 10 miles southwest of Leavenworth, Leavenworth County; buildings on 3 farms damaged. Tornado moved northeastward.
KANSAS Coffey to Leavenworth Counties	17	10:50- 11:15 a.m.	18	200	0	0	5		Tornadoes	Series of 5 tornadoes occurred from near Gridley in southwestern Coffey County to southwestern Leavenworth County. A little damage done to farm buildings near Gridley; buildings on 3 farms near Melvern and on 3 more farms east of Pomona damaged. Funnel dipped to earth only momentarily 4 miles northwest of Centropolis but caused some damage at 1 farm. Tornado sighted south of Tonganoxie, but no building hit in its short path. Tornadoes moved north-northeastward.
TEXAS Sulphur Springs, Hop- kins County	17	11 a.m.	3/4	200			4		Wind	Roofs and windows damaged; tree limbs and powerlines blown down. Storm moved northeastward.
OKLAHOMA Hollow, Craig County	17	11:20 a.m.	3	125	0	0	4	1	Tornado (suspected) and wind	Suspected tornado caused \$5,500 damage to farmsteads and strong winds in area caused an additional \$1,500 damage. Storm moved northeastward.
MISSOURI Vernon County	17	11:30 a.m. -12:30 p.m.	30	200- 400	0	1	5		Tornado	Tornado moved toward Moundville, Nevada, just west of Walker, and west of Schell City. Moundville hardest hit, with 60 or 70 homes damaged. Storm hit west edge of Nevada and several farm buildings along path. Storm moved northeastward.
OKLAHOMA Frederick, Tillman County	17	A.m.			0	0			Funnels aloft	Hunters sighted 2 funnels aloft just west of Frederick.
OKLAHOMA Mayes County	17	A.m.			0	0			Funnel aloft	Motorist reported sighting tornado funnel between Claremore and Tulsa.
IDAHO Clearwater Valley	17	Morning							Wind and rain	Lifted roof off 1 barn and cut powerlines in many places during morning and early afternoon.
TEXAS Cleburne (south of), Johnson County	17	Morning					4		Wind	30 x 60 foot tile garage demolished, 2 trucks damaged; other buildings damaged. Wind sudden and brief in gale proportions. Storm moved eastward.
IOWA Eastern two- thirds	17	All day				6	5	1	Wind and rain	Damaged many buildings and utilities. Storm moved north-northeastward.
NEBRASKA Northeastern portion	17	All day					5		Glaze	Freezing rain damaged power- and telephone lines.
MISSOURI Clinton, Henry County	17	Noon				1	4		Wind	Walls of high school gymnasium under construction collapsed. Several other buildings damaged. House trailer overturned.
MISSOURI Joplin, Jasper County	17	12:15 p.m.				1	4		Wind	Many limbs, powerlines, and phone lines downed. Several roofs blown off and large windows broken.
MISSOURI Carl Junction, Jasper County	17	Midday					3		Wind	Many trees and powerlines downed. Roofs and small buildings damaged by wind. Estimated gusts of 70 to 80 m.p.h.

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NOVEMBER 1958

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MISSOURI Eckland area, Webster County	17	1:30-2 p.m.	15	125	0	0	4	3	Tornado	Path began 3 miles southwest of Eckland, to near Long Lane. Buildings on several farms damaged. Tornado moved northeastward.
MISSOURI Unionville, Putnam County	17	1:30-2 p.m.	3		0	0	4		Tornado	First hit 1 mile west of Unionville, then moved to north of Unionville. Several farm buildings destroyed.
MISSOURI Laredo and Galt, in Grundy and Sullivan Counties	17	1:45-2 p.m.	8	50	0	0	5		Tornado	First hit 1 mile north of Laredo, moved to 4 miles northwest of Galt. Buildings on several farms demolished.
MISSOURI Appleton City, St. Clair County	17	Early after- noon					4		Wind and rain	Heavy rain. Wind damage to homes and farm buildings. Many power- and phone lines downed.
MISSOURI Bethany, Harrison County	17	2 p.m.	6	100	0	0	5		Tornado	Path began at Blue Ridge to 7 miles east of Bethany. Buildings on several farms badly damaged. Tornado moved north-northeastward.
TEXAS Marshall (4 to 5 miles south- west of), Henderson County	17	2-2:30 p.m.	1/2	75	0	0	3		Tornado	Through pasture land and timber. Only damage to small trees.
ARKANSAS Point Cedar, Lambert, and Bismarck areas, Hot Spring County	17	2:30 p.m.			0	0	4	1	Tornado	Church destroyed. Two houses and a barn damaged. Tornado moved northeastward.
MISSOURI Kansas City	17	Afternoon				4	4		Wind	Gusts to 76 m.p.h., reported at Weather Bureau Airport Station. Many reports of trees and powerlines downed. 4 pedestrians injured in falls caused by wind.
MISSOURI Monett, Barry County	17	Afternoon					2		Wind	Lumber storage shed damaged. Wind estimated at 50 m.p.h.
MISSOURI St. Joseph, Buchanan County	17	Afternoon					3		Wind	Winds hit gusts to 75 m.p.h., at St. Joseph Airport. Many trees and lines downed.
TEXAS Mont Belview (5 miles north of), Chambers County	17	4:05 p.m.			0	0			Funnel aloft	
ARKANSAS Searcy, White County	17	4:15 p.m.					4	1	Wind	House, under construction, destroyed, and roof blown off warehouse. Storm moved north-eastward.
OKLAHOMA Prairie Hill (2 miles south- east of), Jack- son County	17		1		0	0		1	Tornado	Tornado caused much damage on at least 1 farmstead. This tornado ran parallel and probably at same time as one at Prairie Hill. Tornado moved northeastward.
	17									Minor storms also reported in Plymouth and Sioux Counties, Iowa; at Aurora, Cainsville, Camdenton, Cameron, Carthage area, Cassville, Clinton, Diamond, Eldorado Springs, Glasgow, Grandview, Grant City, Huntsville, Jasper area, Lamar, La Monte area, Lockwood, Milan, in Nodaway County, at Pleasant Hill, Sedalia, Shelbyville, and Smithville, Mo.; and near Rosebud, Tex.
SOUTH DAKOTA Eastern third	17-18	Noon 17th - fore- noon 18th					4		Snow, glaze, wind, and electrical	Glazing preceded snow and wind in southeast, causing icy highways, broken telephone and powerlines, and collapse of radio tower. Most snow fell during afternoon and evening of 17th. Over 7 inches accumulated in band from Pickstown to Sisseton. Heaviest 10 inches at Watertown. In Sioux Falls area, ice encrustations generally 3/4 inch thick, and thunder and lightning observed during snowfall. Blowing and drifted snow hindered traffic for a short time after storm. In the days that followed, snow thawed rapidly.

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NOVEMBER 1958

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					Killed	Injured	Property (exclusive of crops)	Crops		
WISCONSIN Entire State	17-18	6 p.m. 17th- 3 a.m. 18th			1	1	5		Wind	Primarily associated with cold frontal passage on evening of 17th. Storm moved eastward.
MINNESOTA	17-18	P.m. 17th- p.m. 18th				13		1	Wind, snow, and rain	Deep low pressure system moved over State on 17th and 18th with greatest wind damage along line from Albert Lea through Minneapolis-St. Paul and along North Shore of Lake Superior. Heaviest local damage in Minneapolis-St. Paul and Grand Marais area, North Shore. This storm compares to windstorm of October 10, 1949. Minneapolis-St. Paul Weather Bureau Airport Station recorded a new November record for fastest mile of wind, southwest 60 m.p.h., old record northwest 47 m.p.h., November 1913. This is fourth highest 1-mile speed in history of Twin Cities. Fastest was west 92 m.p.h., in July 1951. Official gusts were 68 m.p.h. Suburban airports reported gusts as high as 80 m.p.h. Utility wires snapped, hundreds of trees downed, plate-glass windows blown in and broken. Glass replacement alone in St. Paul reported at \$25,000. 13 persons injured in Twin Cities. Along North Shore of Lake Superior, Cook and Lake Counties have been declared disaster area by Federal Government. Estimate of dollar damage not available at this time, however, it is expected to be near or over \$1 million. Heaviest damage in and around Grand Marais as winds recorded to 75 m.p.h., by Grand Marais Coast Guard Station. Huge waves flooded lake shore highway. Many lakeshore fish houses and cabins washed away as well as small boat docks. Hundreds of small boats damaged. Duluth Weather Bureau Airport Station recorded official gusts to 75 m.p.h. Duluth record for November's fastest mile also exceeded, new record south 67 m.p.h., old record northwest 63 m.p.h., in 1940. Wind-driven snow fell throughout western and northwestern Minnesota west of line from Luverne to Detroit Lakes to International Falls. Drifted highways halted traffic in Marshall and Kittson Counties. Rain fell east of this line, with heaviest amounts near 3 inches in extreme southeast. Storm moved north-northeastward.
MICHIGAN Entire State	18	All day			33	2		1	Wind	Sustained high winds over entire State. Widely scattered damage to powerlines, trees, automobiles, plate glass, TV antennas, etc. Many areas of Upper Michigan without power or telephones for extended periods. Wind speeds 50 to 60 m.p.h., over northern Lake Michigan. Storm considered one of worst Lake storms of recent years resulted in breaking up and sinking of lake freighter Carl D. Bradley near Gull Island at 5:30 p.m. The Bradley was a 615-foot cargo ship bound from Chicago to Rogers City, Mich. 33 crewman out of crew of 35 drowned.
FLORIDA Sarasota, Sarasota County	19	1 p.m.			0	0			Funnel aloft	Reported 4 miles north of Sarasota.
IDAHO Lewiston and vicinity, Nez Perce County	24	Morning							Wind	Strongest winds ever recorded at Lewiston struck about 7:30 a.m., reaching peak gust of 85 m.p.h., at 9:22 a.m., and 1-minute speed of 67 m.p.h. Because severe part of storm was brief, damage much less than in storm of 3d and 4th. Several plate-glass windows broken in city; barn and school roof damaged in Lewiston Orchards. Power outages occurred in North Lewiston, Lapwai, and other communities.
RHODE ISLAND Newport County	24	Noon- 12:45 p.m.				1	2	1	Electrical	Late-season electrical storm affected southeastern areas, including Block Island. Lightning bolt struck radio transmission tower at Middletown (near Newport). Woman briefly stunned as bolt flashed in radio station building and some equipment burned out. Station resumed operations after about 1 hour.
MONTANA Lewis and Clark, Gallatin, Park, and Meagher Counties	24	1:25- 4:25 p.m.					3	1	Wind	Gusts reached 75 m.p.h., at Helena Weather Bureau Airport Station and Belgrade CAA Airport. Storm moved southeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path miles	Width of path yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
MASSACHUSETTS Southeastern portion	24	P.m.					4	1	Electrical	Lightning killed 8 cows, with \$3,500 loss, at North Dartmouth. Home seriously damaged by lightning at Sconticut Neck.
SOUTH DAKOTA Northern and western counties	24-25	Evening 24th- forenoon 25th					4		Wind	Wind caused electrical wires to short and ignite a cafe at Kodoka. Many power outages occurred across northern counties when winds broke lines. Wind caused a blinding ground blizzard in northeastern corner.
ALASKA Bristol Bay and across Peninsula to Kodiak Island	24-26			*300			5	1	Wind	Deep Aleutian low which crossed into Bering Sea. When storm center moved into central Bering Sea on 24th, strong winds began to affect even inland areas. Brooks Lake estimated wind speeds of 70 m.p.h., on that date. With sustained strong winds which followed, damage along Bering Sea coast and at inland points became widespread. Winds near 110 m.p.h., reported at Cape Newenham, Port Heiden, and King Salmon, with winds over 100 m.p.h., realized inland as far as Mountain Village. Communication facilities, including some antenna towers, blown down at some points, including Iliamna, Port Heiden, and Mountain Village. Roofs blown off of Air Force and CAA buildings in King Salmon area, including hangar roof at King Salmon. Sheds and small buildings blown over. At Port Heiden, 7000-gallon tank truck containing 500 gallons of gasoline lifted and overturned. Windows broken at practically all coastal points where windowed buildings existed. Weather Bureau equipment at Port Heiden almost destroyed. Damage reports incomplete, but believe this to be conservative estimate. If later, more complete information indicates justification of revising this figure supplemental report will be provided later. Storm moved eastward, then northward.
NORTH DAKOTA Entire State	24-27		350		1		5	1	Sleet, wind, snow, and cold	Telephone and powerlines downed due to freezing rain and high winds. Many schools closed, highways blocked. 3-year old girl wandered away from her home in northeastern part of State and froze to death. Storm moved eastward.
COLORADO Adams County	25	2:30 a.m.				2	5		Wind	Area north of Denver, the Fairview Addition, struck by estimated 100 m.p.h., wind, which lasted less than a minute. Two persons injured and at least 50 homes and many cars damaged in area about 1/2 block wide and 5 blocks long. Gusty winds in surrounding areas caused only occasional minor damage. 1 house lost its roof, others lost parts of roofs, carports, windows, etc. Wind apparently a freak extension of high winds which funnelled down mountain canyons to west. At Rocky Flats, near mouth of Coal Creek Canyon, winds clocked at 88 m.p.h., at 2 a.m. Storm moved eastward.
MINNESOTA Northwestern and northern portions	26	A.m.-p.m.					3	1	Snow and wind	New snowfall of 6 to 12 inches accompanied by strong northwesterly winds with gusts as high as 60 m.p.h., and rapidly falling temperatures tied up holiday traffic on 26th and 27th. Numerous traffic accidents reported. Storm moved northeastward.
OKLAHOMA Most of State	27-28				1	2		1	Glaze and sleet	Hazardous driving conditions developed over much of State from glaze and sleet storm. Numerous automobile accidents resulted. Two injuries resulted when car skidded and overturned near Sayre, Beckham County, p.m., of 27th. Man killed when his vehicle skidded and overturned east of Watonga, Blaine County, on 28th.
ILLINOIS Extreme southern portion	28	Morning							Snow	During 12- to 15-hour period ending about noon, 5 to 10 inches of snow fell southeast of line from East St. Louis to Marshall. Near-record early storm for most of area. In area from Carbondale and Harrisburg southward it was the earliest such heavy snow on record. Highway conditions became very bad, but improved rapidly within 2 days.
GEORGIA Cordele (8 miles east of), Crisp County	28	6:35 p.m.	Short	Nar- row	0	0	4	1	Tornado	1 house almost demolished and others damaged. Small buildings destroyed and utility lines damaged. Tornado moved east-northeastward.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories +		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
GEORGIA Chauncey, Dodge County	28	7:15 p.m.	** 1000	Nar- row	0	1	5	1	Tornado	1 residence completely destroyed and others heavily damaged. 1 man slightly injured. Large petroleum carrier truck picked up several feet into air and slammed to ground. Many trees uprooted, damaging utility lines. Tornado moved northeastward. May have been same tornado as one above.
	28									Minor storm also reported at Brewton, Ala.
CONNECTICUT and RHODE ISLAND	28-29	Midday 28th- a.m. 29th			1	6	5	1	Wind, rain, and snow	Storm began as snow with accumulations of 1 to 2 inches. Precipitation changed to freezing rain by midafternoon and finally to rain evening of 28th with excessive amounts recorded between about 8 p.m., 28th and 2 a.m., 29th. Winds with gusts to 70 m.p.h., accompanied rain phase of storm and caused widespread property damage. Major damage included the following: Two 356-foot TV towers blown over at Norwich, chicken coop unroofed at Moosup in eastern Connecticut with loss of 1,000 birds, and large cinder-block wall blown over at construction site at Middletown. Large billboard blown to street from 2-story building, debris injuring pedestrian, and newly-lighted community Xmas tree toppled at Bridgeport. Two large pleasure boats driven aground and many smaller craft torn from moorings in Narragansett Bay. Wind damage to trees, utility lines, and large windows widespread in both States as well as power failures. Precipitation up to 2 inches in Hartford area flooded many streets, yards, and basements; automobile parked in flooded yard heavily damaged by water. Shoreline roads and causeways flooded by tides 2 to 4 feet above normal. Man killed in automobile accident blamed on storm. Warm air accompanying storm produced marked temperature contrasts on late evening of 28th; area west and north of Windsor, Conn., recorded maxima near 45°, while remainder of 2 States had maxima near 60°. Storm moved northeastward.
NEW ENGLAND	28-29	P.m.-a.m.			3	30- 40	5	1	Wind, rain, and snow	Severe cyclonic storm passed northeastward through section, bringing heavy rains to southeastern portions and heavy snow to northwest, up to 12 inches of snow locally in northern Vermont. Minor wind damages widespread, but serious losses mostly limited to eastern Massachusetts. Boats torn loose from moorings, trees and limbs fell on utility lines to cause widespread power- and phone outages. Automobile crushed by tree at Milford, barn blown apart at Fall River, and airplane wrecked at Swansea. Windows blown in, and outdoor Christmas decorations and TV antennas blown down in many communities. Blue Hill Observatory, Milton, Mass., reported 90 m.p.h., gusts. Scores of automobile accidents resulted from storm, mostly in area of snowfall including western Massachusetts, Vermont, most of New Hampshire, and Maine. Many injured and, in Maine, 3 killed in these accidents. Some accidents attributed to heavy, wind-blown rain in eastern Massachusetts, extreme southeastern New Hampshire, and coastal area of Maine. Local damage from cellar flooding reported at Lexington and Concord, Mass.
NEW YORK	28-29				7			1	Snow	Severe early-winter storm (mostly of snow except in southeastern counties) covered State. Snow was wet and packed on roads and later frozen, causing automobile accidents. Six persons reported to have died shoveling snow and seventh died putting chains on car.
OHIO	28, 29, 30								Snow, wind, and cold wave	Cold wave and moderate snowfall on last 3 days of month. Snowfall on 28th ranged from 6 to 8 inches over all but some northwestern counties, interfering somewhat with holiday traffic. Due to strong winds and falling temperatures for the next 2 days, there was a moderate amount of drifting. Most notable was low temperatures on morning of 30th, which broke all-time records for November at many places. Lowest known at this writing was -11° at Barnesville, but zero readings common throughout State.
MICHIGAN Emmet County	29	All day						1	Snow, and wind	10-inch snowfall with winds estimated up to 60 m.p.h., at times.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
CONNECTICUT Hartford County	30	P.m.					3	1	Wind	Northwest winds with gusts of 45 m.p.h., caused some property damage in Bristol and New Britain areas. Large plate-glass window and canvas awning smashed on stores in New Britain; also car damaged considerably by large tree limb downed by wind. At Bristol, tin sheathing on house roof ripped off and had to be replaced.
DELATED REPORTS										
ALASKA Tanacross	Oct. 14	During day					2		Wind	Large intense low. Damage chiefly to buildings in general area; some roofs torn off and other building damage.
ALASKA Fairbanks area	15	A.m.-p.m.				1	4		Wind	Intense low moving across interior. Damage rather widespread over Fairbanks area with most damage in downtown Fairbanks area. Conditions aggravated by sheet of ice over roads, highways, and airport runways. One service man suffered broken legs in car accident which seems to have been caused by wind forcing car off ice-covered highway. Winds continued strong from about 1 a.m., until early afternoon with wind averaging 30 m.p.h., with gusts reaching 55 m.p.h. Strongest winds from 1 a.m., until 7 a.m., at International Airport, but stronger winds appear to have been experienced in business section of Fairbanks, and continued until early afternoon. Damages to business establishments and residential property in outlying areas, including inhabited portion of Tanana Valley. Utilities disrupted in several sections of city.
ALASKA Yakutat	18	10 a.m.- 11 p.m.					3		Wind	Intense Gulf low moving inland. Wind increased from 9 to 38 m.p.h., in 2 hours before 10 a.m. Gusts to 100 m.p.h., observed by CAA observer on duty at Yakutat during peak of storm. Gusts to 87 m.p.h., observed by Weather Bureau personnel, but higher gusts doubtless occurred. Airport hangar roof completely torn off and tin sub-roof buckled and peeled in several places. Damages from wind would have been much more extensive in a more populous area.
ALASKA Aleutians	18-31								Wind	In Aleutians, strong winds reported from 18th on to end of month. Gusts at Adak reached better than 90 m.p.h., on 25th.
ALASKA Wrangell	27-28	During night							Wind	Gulf low with occluded front across Wrangell area. Some structural damages to buildings, but believed to be slight.

* Miles instead of yards.

** Yards instead of miles.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

NOVEMBER 1958

Major flooding occurred on streams in western Washington near the middle of November. The Stillaquamish River exceeded its 1951 crest at Arlington, Wash., and the Snohomish River approached within 2 feet of its record 1951 flood. The major flooding which began on the Rio Grande below Falcon Dam in October continued into the middle of November. Flooding elsewhere was mostly minor.

MISSISSIPPI SYSTEM

Missouri Basin.--Heavy rains (3 to 4 inches) over eastern Kansas and Missouri on the 17th and 18th resulted in minor flooding on Stranger Creek, Wakarusa, and upper Marais des Cygnes Rivers in Kansas and on the Grand and Charitan Rivers in Missouri. Substantial within banks rises were confined to lower portions of the Marais des Cygnes River with stages approaching bankfull at Ottawa, Kans., on November 19, but flattening out considerably downstream. Damages from the comparatively minor flooding were negligible.

White Basin.--Light to moderate flooding occurred on the Black, Little Red, and White Rivers in Arkansas between the 17th and 27th from heavy rain on the 16th and 17th. The Black River at Black Rock, Ark., crested 11.1 feet above flood stage on the 18th and the Little Red River at Heber Springs, Ark., crested 10.3 feet above flood stage on the 17th. Damages were comparatively light.

Lower Mississippi Basin.--Minor flooding occurred in the upper half of the St. Francis Basin beginning at Fisk, Mo., on the 18th and at St. Francis, Ark., on the 25th. The stream was still out of its banks at St. Francis, Ark., by the end of the month. This flood was due to heavy rain on the 14th, 15th, 17th, and 18th. Flooding was confined to low areas along the river inside levees and to adjoining swampy areas used as pastures in dry weather. Few crops had been planted in the overflow area due to the wet spring, and most of those which had been planted had been harvested. The main loss was the loss of present and potential late fall pastures.

WEST GULF OF MEXICO DRAINAGE

The flooding on streams in the Nueces Basin was due to heavy rains during October. The crests were reached during the early part of the month. Little rain fell over the drainage area during the month, but the ground was wet and all streams continued above normal flow. The level of Lake Corpus Christi at Wesley Seale Dam was above the Spillway level of 88 feet all month, and water continued to flow over the dam. Flooding was confined mainly to low pasture land along streams. Only minor damage resulted from the flooding as the low pasture lands had been flooded, usually

at higher levels, during October.

The flood on the lower Rio Grande River which began early in October continued into November with just under or slightly above flood stage at Rio Grande City, Tex., until the 10th and above flood stage at Mercedes, Tex., until the 14th. Flooding was most extensive on the Mexican side from Rio Grande City to below Mercedes. No additional damage resulted from the high water during November.

PACIFIC SLOPE DRAINAGE

Columbia Basin.--Heavy rain on the 9th and 10th caused moderate flooding on the Cowlitz River at Randle, Wash. Additional heavy rain on the 18th and 19th caused another freshet on the Cowlitz and light to moderate flooding on the McKenzie and Santiam Rivers in Oregon. The melting of the snow cover following the first wet period added somewhat to the runoff of this latter storm. Crest stages in the main stem of the Willamette were several feet below flood stage. No damages resulted from this flooding.

Miscellaneous Basins.--Major flooding occurred on the 12th and 13th in the Green, Snohomish, Snoqualmie, and Stillaquamish Valleys in western Washington from heavy rains exceeding 2 inches in 24 hours on the 11th and 12th. The freezing level rose to about 6,500 feet and some 12 to 20 inches of fresh snow above the 3,000-foot level also contributed to the excessive and fast runoff. Flooding in the Chehalis Valley was minor. The Stillaquamish River exceeded its 1951 crest at Arlington, Wash., by 0.6 foot. The Snohomish River approached within 2 feet of the record 1951 flood. No damages occurred in the Green, Snoqualmie, and Snohomish Valleys. On the Duwamish River in Seattle, the 85-foot center span of a 225-foot access bridge between the Boeing Aircraft Development Center and the company's Oxbow parking lot collapsed due to pressure on its wooden pilings from flood water debris. In the lower Snohomish Valley, 6,500 acres of farm and pastureland were inundated. Just across the river from the town of Snohomish, the Seattle-Snohomish Lumber Mill and the Nepa Construction Company halted operations on the 12th when flood waters swept through mill yards. On the Stillaquamish all schools were closed at Arlington for 1 day due to inaccessible school bus routes. The town of Silvana on the lower Stillaquamish also was virtually isolated for most of the day on the 12th. A 100-foot bridge across Deer Creek, a tributary of the North Fork of the Stillaquamish was partially swept away during the early morning hours of the 12th. Another rise occurred from the 21st to the 24th, with minor flooding along the Snoqualmie and Snohomish Rivers.

FLOOD STAGE DATA

(All dates in November unless otherwise specified)

NOVEMBER 1958

River and station	Flood stage	Above flood stages -dates		Crest*	
		From-	To-	Stage	Date
MISSISSIPPI SYSTEM					
Missouri Basin					
Stranger Creek: Tonganoxie, Kans.	23	17	19	25.8	17
Wakarusa: Lawrence, Kans.	23	17	18	27.9	18
Grand: Chillicothe, Mo.	24	18	20	28.25	18
Sumner, Mo.	26	18	22	31.7	20
Pattonsburg, Mo.	25	18	19	25.9	18
Crooked: Richmond, Mo.	22	18	18	22.4	18
Chariton: Novinger, Mo.	20	18	19	21.9	18
Marais des Cygnes: Ouenemo, Kans.	28	18	18	30.4	18
White Basin					
Black: Poplar Bluff, Mo.	16	18	18	16.3	18
Black Rock, Ark.	14	18	27	25.1	18
Little Red: Heber Springs, Ark.	24	17	18	34.3	17
Judsonia, Ark.	30	19	20	33.0	19
White: Batesville, Ark.	23	17	17	23.7	17
Red Basin					
Little: Horatio, Ark.	27	17	19	30.5	18
White Cliffs, Ark.	25	19	21	#26.4	20
Sulphur: Naples, Tex.	22	21	23	#23.2	22
Lower Mississippi Basin					
St. Francis: Fisk, Mo.	20	18	26	23.9	21
St. Francis, Ark.	18	25	Dec. 1	19.1	28
WEST GULF OF MEXICO DRAINAGE					
Frio: Derby, Tex.	6		1	8.0	1
Tilden, Tex.	12	4	6	15.6	5
Calliham, Tex.	12		7	13.9	2
Atascosa: Whitsett, Tex.	20	Oct. 30	1	23.4	Oct. 31

River and station	Flood stage	Above flood stages -dates		Crest*	
		From-	To-	Stage	Date
WEST GULF OF MEXICO DRAINAGE(Cont'd.) <i>Ft.</i>					
Nueces: Tilden, Tex.	11	Sept. 24	15	19.2 15.0 18.7	Oct. 3 Oct. 23 5
Wesley Seale Dam, Tex.	88	Oct. 1	<u>1</u> /	89.7 89.6	Oct. 7 9
Calallen, Tex.	7	Oct. 30	16	8.2	11
Rio Grande: Presidio, Tex.	10	Sept. 23		21.3	Sept. 28
Rio Grande City, Tex.	21	1 6	2 10	21.0 21.9	1 & 2 8
Mercedes, Tex.	21	Oct. 2	14	21.8	1
PACIFIC SLOPE DRAINAGE					
<u>Columbia Basin</u>					
McKenzie: Leaburg, Oreg.	12	19	20	13.2	19
Sanjam: Jefferson, Oreg.	13	19	21	17.3	20
Cowlitz: Randle, Wash.	10	12 21	13 26	16.1 15.9	13 21
<u>Miscellaneous Basins</u>					
Chehalis: Centralia, Wash.	63	13	13	64.3	13
Grand Mound, Wash.	14	13	14	14.3	13
Green: Auburn, Wash.	63	12	13	66.1	13
Snoqualmie: Carnation, Wash.	51	12 20	13 23	54.4 54.9	12 21
Snohomish: Snohomish, Wash.	23	12 21	14 24	27.9 27.5	12 21
Stillaquamish: Arlington, Wash.	16	12	12	19.7	12
Skagit: Concrete, Wash.	26	12 20	12 21	26.2 27.4	12 20

* Provisional
Highest stage observed
1/ Continued at end of month

RAWINSONDE DATA

Average monthly values

NOVEMBER 1958

ALBANY, N. Y. (1005 MB.)												ALBUQUERQUE, N. MEX. (839 MB.)												AMARILLO, TEX. (892 MB.)												ANCHORAGE, ALASKA (997 MB.)												ANNETTE, ALASKA (1006 MB.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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SURFACE	30	86	1.9	82	249	3.3	29	1,619	3.1	63	39	1.0	30	1,095	3.2	66	252	4.7	30	30	-7.0	77	18	1.7	30	37	3.3	85	150	8.4	30	30	-7.0	77	18	1.7	30	37	3.3	85	150	8.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
1,000---	30	125			239	4.5	29	1,773					30	1,556			30	577							30	871			150	5.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
950---	30	541	2.3	71	271	10.1	29	597					30	1,022			30	577							30	403	-4.7	76	25	2.9	36	871																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
900---	30	977	1.0	67	286	15.2	29	1,039					30	1,491	8.3	42	265	9.9	30	1,275	-7.2	70	130	4.9	30	495	1.3	79	107	10.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															</

Average monthly values

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SURFACE Standard pressure surface (mb.)	ST. PAUL IS., ALASKA (998 MB.)						SALEM, OREG. (1012 MB.)						SALT LAKE CITY, UTAH (874 MB.)						SAN ANTONIO, TEX (989 MB.)						SAN DIEGO, CALIF. (1001 MB.)						
	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		
				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed	Direction	Speed
1,000----	30	10	1.5	81	267	1.9	30	61	6.6	91	187	4.3	30	1,288	0.5	74	150	3.3	30	243	12.8	83	5	1.7	29	124	9.7	77	59	1.4	
950----	30	-5			339	3.9	30	158	7.0	86	190	5.6	30	190						30	112		29			29	132		88	1.7	
900----	30	403	-1.2	76	324	5.8	30	580	6.4	80	209	11.7	30	606						30	591	14.3	64	138	3.5	29	565	15.0	43	336	1.4
850----	30	835	-4.5	79	309	6.6	30	1,023	5.0	74	231	14.2	30	1,047						30	1,042	13.7	59	192	6.4	29	1,023	13.8	31	301	2.1
800----	30	1,283	-7.6	79	300	7.4	30	1,488	2.9	73	245	15.3	30	1,511	3.5	58	69	4.3	30	1,523	12.5	55	216	8.7	29	1,502	11.0	32	308	2.9	
750----	30	1,753	-10.2	69	287	8.7	30	1,978	.8	67	256	18.3	30	2,003	2.07	53	228	3.9	30	2,030	10.6	55	228	11.5	29	2,005	8.3	32	308	3.9	
700----	30	2,243	-12.9	61	279	10.7	30	2,490	-1.4	61	264	22.0	30	2,520	.1	53	261	7.8	30	2,567	8.5	47	233	12.4	29	2,528	5.6	29	311	6.6	
650----	30	2,772	-16.0	54	284	14.2	30	3,042	-4.2	55	269	25.5	30	3,073	-2.9	54	286	18.1	30	3,134	5.7	42	241	13.6	29	3,097	2.8	28	308	9.7	
600----	30	3,323	-19.5	63	280	17.3	30	3,617	-7.3	51	271	28.0	30	3,651	-6.0	54	286	20.4	30	3,737	-2.4	39	239	17.5	29	3,684	-		309	12.4	
550----	30	3,917	-23.3	48	272	15.5	30	4,244	-10.7	48	275	31.1	30	4,280	-9.5	52	280	20.4	30	4,380	-1.1		243	19.4	29	4,331	-8.1		305	13.6	
500----	30	4,546	-27.4	48	258	16.5	30	4,903	-14.6	49	274	34.8	30	4,942	-13.4	46	282	26.2	30	5,064	-2.0		243	23.9	29	5,003	-8.1		296	14.2	
450----	30	5,229	-31.8	48	251	18.8	30	5,625	-18.9	51	278	39.2	30	5,667	-18.1	45	282	26.6	30	5,813	-9.9		245	30.3	29	5,747	-13.2		302	17.5	
400----	30	5,961	-36.8	47	281	18.7	30	6,393	-24.1	51	282	44.1	30	6,441	-23.6	37	285	29.9	30	6,615	-15.4		250	35.0	29	6,527	-18.9		298	18.8	
350----	30	6,774	-42.4		270	17.9	30	7,252	-30.0	49	283	49.0	30	7,298	-29.7	37	282	33.4	30	7,499	-21.7		242	32.1	29	7,410	-25.5		301	20.0	
300----	30	7,666	-47.5		276	21.6	30	8,189	-36.9	46	284	50.3	30	8,237	-36.3	36	287	35.0	30	8,468	-28.8		237	28.6	29	8,366	-32.5		308	23.7	
250----	30	8,776	-51.4		259	20.2	30	9,239	-44.4		286	55.6	30	9,291	-43.3		289	40.2	30	9,554	-36.7		246	25.1	29	9,436	-40.3		303	23.5	
200----	30	9,858	-52.1		246	13.7	30	10,439	-52.3		283	59.3	30	10,497	-50.9		292	45.1	30	10,717	-46.5		251	25.5	29	10,658	-48.8		302	31.1	
150----	30	11,310	-53.1		30	10,866	-57.2		287	58.9	30	11,930	-56.5		287	41.2	30	12,639	-56.8		29	12,097	-57.3		29	12,935	-61.1		291	30.1	
125----	30	12,188	-48.4		30	12,710	-57.5		285	53.8	30	12,781	-57.8		285	38.5	30	13,077	-61.2		29	13,077	-61.2		29	13,939	-61.8		283	25.5	
100----	30	13,205	-47.8		29	13,680	-58.2		282	46.8	30	13,745	-58.4		283	35.6	30	14,025	-65.0		29	14,025	-65.0		29	15,014	-64.7		278	22.9	
75----	30	14,410	-47.2		29	14,827	-59.3		280	39.2	30	14,888	-60.3		278	32.4	29	15,127	-68.7		29	15,127	-68.7		29	16,367	-67.6		285	17.8	
50----	30	15,892	-46.2		28	16,222	-59.8		283	34.0	29	16,277	-61.3		280	28.9	28	16,455	-71.1		29	16,455	-71.1		27	17,718	-68.2		291	11.4	
25----	30	17,377	-46.0		28	17,622	-58.4		291	20.9	29	17,661	-61.3		283	18.0	25	17,775	-71.1		27	17,775	-71.1		27	19,458	-64.7		296	5.4	
0----	30	19,289	-47.2		27	19,433	-59.4		300	11.4	29	19,452	-60.1		300	10.2	23	19,497	-65.7		27	19,497	-65.7		27	20,578	-62.4		311	2.9	
30----	25	20,485	-47.8	8	27	20,578	-58.4		317	7.5	29	20,594	-58.4		296	5.0	22	20,620	-63.1		26	21,967	-60.6		26	23,772	-57.8		273	2.5	
40----	24	21,963	-48.7		23	21,983	-57.3		351	5.4	26	21,992	-58.2		352	1.5	21	22,007	-60.6		26	23,772	-57.8		26	25,772	-57.8		298	3.5	
30----	30	23,862	-49.1		19	23,798	-55.7		68	9.1	24	23,808	-56.9		70	5.6	21	23,809	-56.8		26	25,772	-57.8		26	27,925	-56.7		298	3.8	
25----	30	25,409	-49.2		19	24,961	-55.0		67	9.5	21	24,968	-55.7		59	7.5	18	24,961	-55.1		26	24,961	-55.1		26	26,345	-55.7		313	5.8	
20----	30	26,513	-49.4		8	26,347	-55.9				14	26,381	-54.6		58	7.1	12	26,368	-53.4		26	26,368	-53.4		22	28,178	-54.2		329	3.8	
15----	21	28,398	-49.7														9	28,223	-50.4												
10----	12	31,047	-50.1																							13	30,789	-51.8		13	4.8

SAN JUAN, P. R. (1014 MB.)										SANTA MARIA, CALIF. (1009 MB.)										SANTA MONICA, CALIF. (1012 MB.)										SAULT STE. MARIE, MICH. (985 MB.)										SEATTLE, WASH. (1002 MB.)									
SURFACE	30	6	23.9	86	118	2.7	30	74	8.3	77	343	0.6	30	38	13.2	63	28	4.2	30	221	0.0	86	232	0.8	30	125	5.3	88	184	3.3																			
1,000--	30	130	24.8	76	96	9.7	30	148	11.9	64	19	2.1	30	138	15.2	52	30	3.6	30	98					30	141			142	1.9																			
950--	30	584	28.1	78	82	17.5	30	585	15.2	39	29	7.0	30	575	14.5	40	4	3.1	30	509	.1	79	234	5.6	30	557	4.6	74	214	11.5																			
900--	30	1,048	18.8	77	84	17.9	30	1,038	13.4	34	20	7.8	30	1,028	13.2	30	355	3.1	30	942	- 1.2	69	256	11.7	30	1,000	2.6	70	231	15.0																			
850--	30	1,538	15.9	74	82	17.1	30	1,517	11.1	34	1	9.1	30	1,507	10.7	28	360	2.7	30	1,397	- 2.9	62	264	17.1	30	1,461	.5	68	239	17.1																			
800--	30	2,051	13.3	66	79	15.3	30	2,021	8.5	33	348	10.9	30	2,009	8.0	28	329	3.3	30	1,875	- 5.4	62	265	18.8	30	1,946	- 1.6	60	252	17.5																			
750--	30	2,594	11.1	52	82	12.6	30	2,551	5.5	33	339	12.0	30	2,539	5.3	25	337	4.6	30	2,379	- 7.6	61	266	22.2	30	2,456	- 4.5	56	261	20.2																			
700--	30	3,167	8.8	39	81	10.9	30	3,113	2.5		328	13.2	30	3,099	2.3	28	314	7.9	30	2,915	- 9.6	55	270	27.0	30	2,999	- 6.9	49	266	25.5																			
650--	30	3,777	5.7	33	75	10.7	30	3,700	- 1.0	32	322	15.0	30	3,689	- 1.2	28	315	10.6	30	3,481	-12.5	50	271	30.3	30	3,570	-10.0	44	266	31.5																			
600--	30	4,422	1.8	29	75	8.4	30	4,343	- 4.7		322	15.3	30	4,328	- 3.0	28	314	12.4	30	4,093	-15.7	46	273	35.4	30	4,189	-12.9	42	270	35.9																			
550--	30	5,118	- 2.4	30	67	8.2	30	5,013	- 9.2		323	15.5	30	5,000	- 9.3		308	14.3	30	4,740	-19.5	42	271	39.6	30	4,843	-16.3	43	273	42.2																			
500--	30	5,875	- 7.0	28	73	7.0	30	5,753	-14.0		316	16.3	30	5,738	-14.0		307	18.0	30	5,447	-23.6	42	271	42.9	30	5,560	-20.8	43	274	45.7																			
450--	30	6,681	-12.4		71	6.2	30	6,536	-19.3		301	19.8	30	6,522	-19.4		301	22.1	30	6,204	-28.3	42	272	46.6	30	6,323	-26.1	45	277	47.0																			
400--	30	7,579	-19.0		59	3.9	30	7,411	-25.8		307	22.0	30	7,396	-25.8		301	24.8	30	7,047	-33.8	44	271	54.0	30	7,174	-31.8	43	280	54.0																			
350--	30	8,559	-26.2		343	3.9	30	8,366	-32.8		307	25.3	29	8,345	-32.9		304	26.8	30	7,971	-39.8		271	58.9	30	8,106	-38.0	41	281	63.4																			
300--	30	9,655	-35.2		311	6.0	30	9,433	-40.8		302	24.7	29	9,413	-40.7		305	28.9	30	9,011	-45.7		272	60.6	30	9,153	-44.9		280	69.0																			
250--	30	10,899	-45.2		297	9.7	30	10,652	-49.2		302	32.4	29	10,632	-49.2		302	33.6	30	10,211	-51.0		273	64.1	30	10,353	-51.8		282	72.5																			
200--	30	12,353	-56.1		300	16.7	30	12,089	-57.3		299	31.9	29	12,070	-56.8		295	36.3	30	11,653	-53.4		273	66.1	30	11,786	-55.4		284	65.7																			
175--	30	13,616	-61.6		306	17.9	30	13,928	-58.7		303	27.0	29	12,910	-59.8		293	34.3	30	12,514	-53.7		274	62.6	30	12,637	-55.1		283	57.5																			
150--	30	14,134	-67.3		306	19.2	29	13,885	-61.4		289	24.7	29	13,869	-61.7		280	24.4	27	13,494	-53.5		275	56.9	30	13,620	-54.5		282	50.3																			
125--	30	15,222	-71.8		303	16.5	29	15,009	-63.9		292	22.9	29	14,992	-64.3		282	24.8	26	14,656	-53.8		273	49.1	30	14,780	-56.8		282	44.3																			
100--	30	16,526	-75.5		321	9.7	29	16,169	-66.7		298	17.0	29	16,138	-66.8		282	21.1	20	16,069	-53.8		279	42.7	30	16,192	-57.1		284	35.7																			
80--	27	17,821	-73.7		5	6.9	29	17,716	-66.2		300	10.6	28	17,690	-67.1		287	15.1	16	17,491	-54.6		277	31.6	30	17,609	-55.9		280	22.1																			
60--	27	19,532	-66.1		66	4.6	28	19,470	-64.3		1	5.0	27	19,439	-64.7		297	6.4	11	19,318	-54.7		277	17.2	26	19,437	-56.5		304	12.2																			
50--	25	20,651	-61.1		52	5.6	26	20,592	-62.0		323	6.0	27	20,559	-62.3		295	4.0	11	20,482	-55.4				25	20,597	-56.8		307	7.9																			
40--	24	22,055	-55.7		90	12.6	25	21,978	-59.9		63	4.4	27	21,944	-60.7		283	2.9	10	21,896	-55.7				21	22,011	-55.9		339	5.6																			
30--	24	23,902	-51.8		90	12.8	21	23,781	-57.5		1	1.9	27	23,746	-58.3		289	4.2	7	23,716	-54.6				17	23,847	-54.9		339	5.6																			
25--	21	25,095	-49.1		92	21.9	19	24,941	-56.7		60	.1	26	24,896	-57.2		297	3.4	7	24,882	-54.8				12	25,019	-54.8		26	7.5																			
20--	20	26,455	-47.8		97	18.6	5	26,364	-55.6				25	26,307	-56.6		332	2.1	6	26,296	-55.0																												
15--	12	28,465	-44.8										24	28,145	-54.4		336	4.4																															
10--													17	30,749	-51.9		328	9.3																															
7--													5	33,072	-50.8																																		

SHREVEPORT, LA. (1010 MB.)										SPOKANE, WASH. (932 MB.)										TAMPA, FLA. (1017 MB.)										TATOOSH IS., WASH. (1012 MB.)										TOPEKA, KANS. (985 MB.)									
SURFACE	30	76	9.4	83	143	2.1	30	722	0.9	87	205	5.6	30	8	18.4	90	39	4.3	30	31	7.7	79	146	5.6	30	269	4.3	75	237	1.7																			
1,000----	30	157	12.3	69	130	2.3	30	151			30	157	19.5	84	66	6.4	30	131	7.1	76	149	6.0	30	143																									
950-----	30	591	12.5	35	196	4.7	30	566			30	161	18.7	76	123	3.1	30	545	4.4	76	182	4.1	30	566	7.0	57	249	7.6																					
900-----	30	1,042	11.8	48	226	7.0	30	1,002			30	1,063	16.3	69	205	2.3	30	545	4.4	76	182	4.1	30	1,070	7.0	53	265	13.2																					
850-----	30	1,514	10.3	50	238	9.3	30	1,561		9	79	215	8.9	30	1,614	14.4	69	243	4.7	30	1,449	6.5	144	65	14.4	30	1,475	5.4	47	314	18.2																		
800-----	30	2,023	8.9	52	245	11.9	30	1,944	-2.6	68	248	18.1	30	2,059	12.1	48	252	6.6	30	1,933	-2.5	57	238	14.6	30	1,974	3.8	47	284	17.5																			
750-----	30	2,554	6.5	43	248	15.5	30	2,452	-4.8	63	263	21.2	30	2,600	10.2	37	250	8.2	30	2,438	-4.8	55	259	18.3	30	2,495	1.3	45	284	22.0																			
700-----	30	3,120	4.1	35	251	17.1	30	2,995	-7.7	61	271	24.9	30	3,169	7.6		253	9.5	30	2,983	-7.8	53	266	21.4	30	3,049	-1.6	42	276	22.7																			
650-----	30	3,715	1.0	35	253	18.3	30	3,563	-10.5	55	272	30.3	30	3,776	4.4		256	13.0	30	3,550	-10.6	50	270	26.6	30	3,631	-4.4	39	271	26.4																			
600-----	30	4,319	-2.7	30	254	22.7	30	4,181	-13.7	53	273	35.9	30	4,424	-7		254	15.5	30	4,169	-13.6	46	270	32.3	30	4,264	-7.8	35	268	30.9																			
550-----	30	5,040	-6.8	33	259	28.8	30	4,833	-17.6	54	276	38.5	30	5,111	-3.5		257	17.1	30	4,819	-17.7	41	271	37.7	30	4,930	-11.8	34	273	34.8																			
500-----	30	5,783	-11.4	30	258	33.6	30	5,527	-22.3	55	278	45.9	30	5,810	-8.2		258	18.4	30	5,514	-17.9	40	272	43.9	30	5,625	-16.5	30	273	38.2																			
450-----	30	6,526	-16.0	30	257	38.9	30	6,269	-27.2	55	280	51.3	30	6,670	-13.9		265	19.0	30	6,295	-26.2	43	273	49.4	30	6,438	-22.6	26	279	38.1																			
400-----	30	7,459	-22.6	30	260	43.9	30	7,152	-32.8	48	281	56.9	29	7,560	-20.2		259	21.6	30	7,144	-32.3	44	278	56.2	29	7,304	-27.9	27	277	42.0																			
350-----	30	8,425	-29.7	30	260	51.1	30	8,080	-38.8		282	63.4	29	8,535	-27.7		259	22.2	30	8,074	-38.7		277	58.3	29	8,250	-34.9	29	274	40.4																			
300-----	30	9,507	-37.7	30	259	57.7	30	9,123	-45.8		284	71.5	28	9,626	-36.3		259	25.3	30	9,118	-45.3		275	61.2	29	9,309	-42.3	27	273	45.7																			
250-----	30	10,739	-47.0	30	259	66.5	30	10,318	-52.3		287	70.7	28	10,864	-46.4		270	29.5	29	10,312	-52.2		277	60.6	29	10,521	-50.4	27	274	50.5																			
200-----	30	12,185	-56.4	30	260	71.7	30	11,752	-54.5		286	60.6	27	12,313	-57.6		269	29.5	29	11,742	-55.5		273	58.7	29	11,956	-55.6	27	273	56.3																			
175-----	30	13,025	-60.6	30	262	66.8	30	12,609	-54.1		288	56.5	27	13,145	-63.0		262	29.0	29	12,593	-55.5		272	51.1	29	12,805	-57.5	27	270	54.4																			
150-----	30	13,913	-64.1	30	261	60.4	30	13,398	-54.2		288	49.4	27	14,005	-67.5		269	28.4	29	13,515	-57.5		272	48.7	29	13,776	-58.4	26	267	53.2																			
125-----	30	14,866	-66.8	30	261	65.7	30	14,370	-55.7		287	40.0	26	15,170	-71.2		269	21.3	29	14,744	-55.3		271	40.0	29	14,915	-61.0	20	270	50.1																			
100-----	30	16,028	-69.0	30	261	70.7	28	16,195	-56.3		282	32.4	26	16,484	-73.2		266	19.0	29	16,166	-56.0		270	28.1	29	16,296	-62.6	27	271	41.5																			
80-----	30	17,762	-69.0	30	267	72.7	28	17,612	-56.4		288	23.8	25	17,788	-72.7		273	9.7	29	17,583	-56.1		270	22.9	29	17,673	-62.1	26	267	28.7																			
60-----	30	19,198	-64.7	30	249	8.5	27	19,440	-56.2		284	13.7	25	19,497	-67.4		5	1	28	19,409	-56.2		281	10.4	29	19,455	-61.3	27	273	20.7																			
40-----	30	20,617	-62.5	30	268	6.6	27	20,595	-56.1		308	8.3	25	20,607	-63.3		278	3.4	26	20,567	-55.7		284	7.7	29	20,589	-60.2	27	278	11.6																			
20-----	30	22,004	-60.3	30	269	3.1	25	22,016	-55.6		336	5.8	25	21,995	-58.9		306	9.3	26	21,988	-55.1		310	2.1	28	21,984	-58.9	30	314	4.4																			
15-----	30	23,283	-56.7	30	301	6.6	20	23,846	-54.5		20	5.4	24	23,818	-55.2		277	14.7	25	23,832	-53.6		31	2.2	28	23,804	-56.6	30	318	4.0																			
10-----	30	25,298	-55.0	30	295	1.1	11	25,013	-55.1		21	24	24	24	24	24		271	14.7	25	23,832	-53.6		31	2.2	28	23,804	-56.6	30	318	4.0																		
5-----	30	26,237	-56.1	30	276	1.7	5	26,398	-55.3									271	28.1	21	26,432	-52.8		65	5.8	21	26,383	-54.4	27	27	9.5																		
15-----	18	28,297	-50.6		284	18.2												275	36.1	17	28,292	-53.0		79	14.5	19	28,223	-53.2	37	37	10.8																		
10-----	6	30,965	-47.4															5	30,982	-53.8						5	30,903	-49.8																					

See reference note at end of table

RAWINSONDE DATA

Average monthly values

NOVEMBER 1958

WASHINGTON, D. C. (1008 MB.)							WINNEMUCCA, NEV (872 MB.)							YAKUTAT, ALASKA (1002 MB.)							
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity		Wind		Number of observations	Dynamic height	Temperature	Relative humidity		Wind		Number of observations	Dynamic height	Temperature	Relative humidity		Wind	
				Direction	Speed	Direction	Speed				Direction	Speed	Direction	Speed							
SURFACE	30	88	6.4	74	271	2.7		30	1,310	- 1.0	75	128	1.0	29	12	0.2	86	91	8.0		
1,000----	30	154	7.5	66	267	3.6		30	200					29	27			87	7.0		
950-----	30	575	7.1	60	293	12.8		30	617					29	438	- 1	77	121	10.3		
900-----	30	1,021	5.5	56	291	15.9		30	1,057					29	872	- 2.4	78	142	8.7		
850-----	30	1,488	4.0	53	287	20.7		30	1,517	4.9	56	166	2.5	29	1,324	- 5.2	78	158	8.2		
800-----	30	1,980	2.8	47	280	24.8		30	2,011	3.6	46	257	8.0	29	1,798	- 8.2	77	186	9.5		
750-----	30	2,498	.8	45	273	27.0		30	2,531	1.1	46	281	13.4	29	2,295	-11.2	70	200	10.5		
700-----	30	3,053	- 1.5	42	270	30.6		30	3,085	- 1.9	48	287	15.5	29	2,823	-14.7	68	227	11.9		
650-----	30	3,636	- 4.1	38	268	35.1		30	3,666	- 5.0	49	294	17.7	29	3,373	-18.6	60	240	11.3		
600-----	30	4,269	- 7.2		271	38.4		30	4,297	- 8.4	48	291	21.0	29	3,972	-22.7	56	247	12.0		
550-----	30	4,934	-11.4		269	42.9		30	4,960	-12.6	42	294	23.3	29	4,601	-26.8	54	259	13.0		
500-----	30	5,667	-16.2		269	46.8		30	5,689	-17.1	38	291	28.4	29	5,288	-31.3	55	253	19.2		
450-----	30	6,445	-21.7		270	46.2		30	6,462	-22.3		298	29.7	29	6,021	-36.5	51	261	21.2		
400-----	30	7,311	-27.8		276	48.1		30	7,327	-28.6		301	32.3	29	6,834	-42.1		264	23.3		
350-----	30	8,257	-34.6		279	52.8		30	8,271	-35.5		299	36.1	29	7,728	-47.1		259	18.8		
300-----	30	9,318	-41.6		280	63.7		30	9,327	-43.0		304	38.1	29	8,738	-51.1					
250-----	30	10,535	-48.9		279	71.1		30	10,535	-50.9		309	41.2	29	9,922	-51.4					
200-----	30	11,978	-53.3		280	77.7		30	11,964	-57.4		307	42.9	29	11,378	-49.5					
175-----	30	12,825	-58.0		281	72.4		30	12,807	-58.3		302	40.6	29	12,254	-48.8					
150-----	30	13,791	-60.2		280	65.8		30	13,775	-59.2		297	35.4	29	13,269	-48.0					
125-----	30	14,923	-62.2		280	53.2		28	14,913	-60.9		294	31.0	29	14,474	-47.5					
100-----	30	16,297	-63.7		279	41.1		28	16,298	-62.3		294	26.0	29	15,952	-46.7					
80-----	30	17,668	-63.1		280	30.8		28	17,676	-62.0		302	19.4	28	17,432	-47.5					
60-----	30	19,447	-61.2		290	17.2		27	19,462	-60.6		312	7.1	28	19,330	-48.9					
50-----	30	20,581	-60.2		298	13.4		26	20,599	-59.8		352	4.4	28	20,527	-49.3					
40-----	29	21,978	-59.0		315	8.5		26	21,998	-58.4		19	4.4	28	21,990	-49.9					
30-----	27	23,794	-57.1		320	11.0		23	23,824	-56.5		45	6.4	27	23,869	-50.0					
25-----	26	24,952	-55.4		323	8.5		17	24,986	-55.0		67	11.4	25	25,060	-49.6					
20-----	26	26,381	-53.8		311	10.8		12	26,400	-54.4		63	12.2	23	26,523	-49.5					
15-----	23	28,241	-52.1		312	11.2								19	28,413	-48.9					
10-----	13	30,883	-48.3											11	31,077	-49.9					

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 10 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been

computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

NOVEMBER 1958

Date	Sun's zenith distance									
	A M					P M				
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
ALBUQUERQUE, N. MEX.										
	Air mass									
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19	
Nov. 1-----	1.04	1.16	1.26	1.39	----	----	----	----	----	
2-----	1.07	1.18	1.29	1.43	1.45	1.37	1.23	1.09	0.99	
3-----	1.07	1.18	1.28	1.41	1.49	1.40	1.24	1.08	.97	
5-----	1.04	1.13	1.26	1.40	1.44	1.35	----	1.08	.96	
6-----	1.04	1.19	1.28	----	1.39	1.42	K 1.28	K 1.15	1.06	
7-----	1.09	1.18	1.30	1.41	1.51	----	----	1.09	1.01	
8-----	1.12	1.22	1.32	1.45	1.47	1.39	K 1.23	K 1.14	1.02	
9-----	1.11	1.20	1.32	1.43	1.49	1.41	1.25	1.14	1.04	
10-----	1.07	1.17	1.24	1.41	1.48	1.42	----	----	1.05	
12-----	.95	1.01	1.36	----	----	----	----	----	----	
13-----	1.02	1.12	1.23	1.37	1.46	1.38	1.25	1.09	.99	
14-----	1.10	1.20	1.31	1.44	1.51	1.43	1.13	1.18	1.08	
15-----	----	----	----	1.46	1.49	1.21	----	----	----	
17-----	----	----	1.31	1.46	1.51	1.46	1.32	1.17	1.07	
18-----	1.13	1.20	1.31	1.47	1.53	1.46	1.29	1.16	1.03	
19-----	----	----	----	1.44	1.49	1.38	1.16	----	.97	
20-----	1.07	1.19	1.31	1.44	----	----	----	----	----	
22-----	1.02	----	----	1.35	----	----	----	----	----	
23-----	----	1.13	----	----	1.28	1.38	1.23	----	----	
24-----	H 1.07	H 1.19	1.32	1.40	1.50	1.43	----	----	----	
28-----	1.14	1.24	1.34	1.50	H 1.44	1.50	1.23	1.16	1.11	
29-----	1.15	1.25	1.35	1.47	H 1.49	1.49	1.34	1.23	1.12	
30-----	1.07	1.17	1.29	1.43	1.47	1.45	1.29	1.18	1.09	
Aver- ages	1.09	1.19	1.30	1.43	1.49	1.43	1.26	1.14	1.04	

BLUE HILL, MASS.										
	Air mass									
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89	
Nov. 1-----	----	----	----	----	1.44	----	1.18	1.08	----	
4-----	1.02	1.12	1.24	1.32	1.34	1.30	1.21	----	----	
5-----	.68	.76	.91	1.18	----	----	----	----	----	
7-----	----	----	----	1.32	----	----	----	----	----	
8-----	1.06	1.15	1.24	----	----	----	----	----	----	
11-----	----	----	1.18	1.38	1.38	1.35	1.16	1.00	0.87	
12-----	.80	.90	1.09	1.36	1.37	1.38	1.24	1.11	1.01	
19-----	----	----	----	----	----	----	----	1.01	.98	
20-----	.98	1.10	1.23	----	1.32	----	1.18	1.01	.90	
22-----	----	1.10	1.22	----	----	----	----	----	----	
23-----	----	1.10	1.22	----	----	----	----	----	----	
25-----	1.06	1.13	1.26	----	1.36	----	----	----	----	
30-----	1.04	1.16	1.28	----	1.41	----	1.30	1.20	1.08	
Aver- ages	0.95	1.05	1.18	1.31	1.37	1.34	1.21	1.08	0.97	

WASHINGTON, D. C. (WBCO)										
	Air mass									
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00	
Nov. 6-----	0.58	0.70	0.86	----	----	----	----	----	----	
7-----	.65	.75	.94	1.27	----	----	----	----	----	
8-----	.62	.74	.89	----	1.08	----	----	----	----	
9-----	.87	1.01	1.14	----	----	----	----	----	----	
11-----	.58	.65	.86	1.09	1.15	----	----	----	----	
19-----	----	----	----	1.26	1.27	1.30	1.03	0.94	----	
20-----	.90	.97	----	1.26	1.27	1.23	1.09	.94	.86	
25-----	.76	.88	----	----	----	----	----	----	----	
Aver- ages	0.72	0.81	0.94	1.21	1.21	1.20	1.09	0.99	0.90	

* Values corresponding to true solar noon
H Haze
K Smoke
M Moderate haze - indeterminable
S Slight haze - indeterminable

MADISON, WIS.										
Date	Sun's zenith distance									
	A M					P M				
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
Air mass										
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69	
Nov. 3-----	M 0.75	M 0.87	M 1.04	M 1.23	M 1.25	S 1.23	S 1.02	0.91	0.83	
6-----	1.02	1.12	1.24	1.39	----	----	----	----	----	
10-----	1.05	1.15	1.25	----	1.35	----	1.20	1.08	.96	
19-----	1.02	1.18	1.29	----	1.38	----	----	----	----	
Aver- ages	0.96	1.08	1.21	1.31	1.33	1.23	1.11	1.00	0.90	

OMAHA, NEBR.										
	Air mass									
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78	
Nov. 2-----	S 0.68	S 0.80	S 0.93	S 1.09	S 1.12	S 1.09	S 0.93	S 0.76	S 0.62	
3-----	S .68	S .79	S .92	M .99	----	----	----	----	----	
5-----	S .80	S .93	S 1.01	S 1.14	S 1.18	----	----	----	----	
6-----	S .77	S .84	----	----	----	----	----	----	----	
8-----	.83	.92	1.04	1.18	1.18	----	----	----	----	
9-----	.80	.87	.99	1.12	1.14	1.14	.98	.86	.69	
10-----	S .67	S .79	S .90	1.06	1.08	S 1.06	M .84	M .77	M .56	
11-----	S .66	S .77	S .93	----	----	1.06	----	----	----	
18-----	----	----	----	----	----	----	1.03	.89	.77	
19-----	.76	.86	.97	----	1.13	----	----	----	----	
21-----	----	----	----	----	----	----	M .91	M .86	M .71	
22-----	M .71	M .83	M .93	----	S 1.09	----	----	----	----	
25-----	----	----	----	----	----	----	M .81	M .76	M .69	
26-----	.85	.96	1.08	----	1.20	----	----	----	----	
28-----	.84	.94	1.08	----	1.21	----	----	----	----	
Aver- ages	0.75	0.86	0.98	1.09	1.20	1.09	0.92	0.82	0.67	

MAUNA LOA OBS., HAWAII										
	Air mass									
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36	
Nov. 1-----	1.33	1.40	1.49	1.60	1.69	1.59	1.48	1.39	1.31	
2-----	1.26	1.34	1.44	1.55	----	----	----	----	----	
4-----	----	----	----	----	1.65	1.53	1.42	1.32	1.25	
5-----	1.23	1.31	1.42	1.53	1.63	----	----	----	----	
6-----	1.23	1.32	1.42	1.53	1.62	----	----	----	----	
7-----	1.16	1.25	1.35	1.49	----	----	----	----	----	
8-----	----	----	1.36	1.48	----	----	----	----	----	
13-----	----	----	1.37	1.50	----	1.50	1.36	1.27	1.18	
14-----	1.24	1.34	1.44	1.54	1.63	1.51	1.40	1.31	1.22	
15-----	1.29	1.36	1.45	1.57	1.68	1.55	1.46	1.37	1.30	
16-----	1.35	1.42	1.52	----	----	1.66	1.52	----	----	
18-----	1.29	----	1.43	1.55	----	1.66	1.52	----	----	
23-----	1.37	1.45	1.54	1.65	1.72	1.61	1.50	1.41	1.33	
24-----	----	----	1.50	1.61	----	----	----	----	----	
26-----	----	----	----	----	1.68	----	----	----	1.33	
27-----	----	----	----	----	----	1.43	1.34	1.26	1.26	
28-----	1.22	1.30	----	1.51	1.64	1.52	1.40	1.30	1.22	
29-----	1.31	1.39	1.50	1.61	1.67	----	1.40	1.30	1.23	
30-----	1.28	1.36	1.45	1.57	1.61	1.53	----	----	----	
Aver- ages	1.27	1.35	1.44	1.55	1.66	1.54	1.43	1.33	1.26	

GUAM, M. I.										
	Air mass									
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92	
Nov. 21-----	M 0.49	----	----	----	----	----	----	----	----	
22-----	----	----	----	----	----	----	S 0.90	----	----	

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station

listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

NOVEMBER 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg																Avg										Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25				
Langleys-----	480	166	347	441	53	23	548	294	546	388	81	110	72	45	41	183	71	544	401	315	463	126	518	348			
Date-----	26	27	28	29	30	1	2																				
Langleys-----	12	410	40	502	579	49	398	284																			

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

	Avg																Avg																Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25										
Langleys-----	49	84	67	79	26	17	35	51	24	59	74	70	83	50	25	55	17	29	55	46	52	84	26	44									
Date-----	26	27	28	29	30	1	2																										
Langleys-----	5	64	49	50	20	49	51	41																									

Note: Langley is the unit used to denote one gram calorie per square centimeter.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

NOVEMBER 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	*19	*-67	62	47	94	101	*115	83	*86	*76	72	81	87	80	56	78	*15	60	*-31	58	53	70	70	35	46	*-56	48	*35	33	41		52

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

NOVEMBER 1958

	Aktavik, Mackenzie	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Ore.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N. C.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Ore.	Dartmouth, N. S.	Davis, Calif.	Dodge City, Kans.	F. Lansing, Mich.	Edmonton, Alberta	El Paso, Tex.	Ely, Nev.	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	
1958																														
Nov. 5-----	11	406	42	---	47	---	10	---	270	284	190	254	387	660	212	155	53	187	320	129	266	326	349	154	168	435	301	247	289	42
Nov. 6-----	7	405	89	60	54	---	5	---	243	159	76	169	319	690	283	49	125	263	326	45	123	312	362	153	115	429	337	402	286	152
Nov. 7-----	13	399	13	413	65	---	6	---	108	228	266	201	415	692	295	194	357	257	270	110	268	310	304	272	158	428	326	409	281	410
Nov. 8-----	11	405	19	237	128	---	5	---	199	275	180	263	421	692	405	202	320	326	96	268	288	358	63	107	415	330	411	277	401	
Nov. 9-----	21	398	81	372	81	---	7	107	252	50	66	37	421	460	383	63	328	83	311	62	210	236	368	169	149	321	398	285	462	462
Nov. 10-----	8	391	23	425	122	---	5	118	196	30	204	27	386	(665)	411	62	373	114	309	232	39	322	351	107	139	409	115	387	130	441
Nov. 11-----	6	223	35	437	107	---	5	127	249	300	271	270	433	614	411	180	377	271	276	211	118	307	320	251	136	285	204	279	232	458
Average-----	11	375	43	324	86	---	6	---	217	189	179	174	396	(630)	343	129	276	186	305	127	150	300	344	181	139	403	276	362	254	338
Nov. 12-----	4	307	39	404	---	378	4	---	236	296	257	265	417	667	388	185	357	242	211	58	91	284	213	274	95	---	314	202	288	437
Nov. 13-----	6	386	70	367	66	372	6	---	120	249	29	220	399	659	371	237	321	134	166	56	244	279	244	74	46	237	322	191	272	306
Nov. 14-----	8	387	149	355	115	195	7	12	90	93	10	75	210	647	361	51	219	67	48	81	162	153	320	74	34	360	244	151	173	420
Nov. 15-----	7	360	96	387	233	157	1	41	58	104	242	95	262	648	127	103	282	33	94	157	136	239	214	28	93	271	180	244	272	410
Nov. 16-----	4	249	4	373	185	316	1	32	49	99	259	92	259	682	235	220	324	91	18	228	243	318	225	33	142	329	333	49	258	522
Nov. 17-----	8	397	22	390	49	291	1	24	99	61	258	72	293	668	332	34	233	38	78	83	94	222	179	45	135	407	348	102	(280)	425
Nov. 18-----	2	383	40	343	16	244	1	39	243	51	104	37	110	591	310	55	288	35	291	29	122	154	343	186	103	413	280	359	278	400
Average-----	5	353	60	374	111	279	3	30	128	136	166	122	279	651	304	126	289	91	129	99	156	236	248	102	93	336	289	185	(260)	417
Nov. 19-----	3	364	34	254	100	324	*	68	182	40	56	44	241	638	312	44	282	262	287	34	32	280	300	209	127	---	315	389	270	381
Nov. 20-----	2	334	63	396	57	345	---	23	217	255	251	241	220	663	371	114	352	234	277	104	128	223	324	208	64	401	294	364	269	413
Nov. 21-----	2	286	36	400	58	358	---	19	215	223	246	197	209	653	356	72	344	141	248	48	74	257	315	103	62	333	216	367	258	422
Nov. 22-----	6	298	75	394	45	352	---	26	159	159	236	209	345	603	351	89	332	186	273	129	205	260	197	221	29	279	272	316	249	370
Nov. 23-----	4	341	59	370	77	288	---	20	105	241	155	207	355	468	333	178	256	236	247	67	183	225	309	212	109	179	298	202	241	359
Nov. 24-----	3	338	113	240	192	303	---	29	91	119	133	115	273	646	95	54	155	48	83	137	82	137	96	216	63	359	161	178	113	360
Nov. 25-----	2	187	70	313	197	298	---	7	144	242	255	219	363	641	137	201	225	174	17	216	117	113	226	78	81	322	275	322	186	369
Average-----	3	307	64	338	104	324	---	28	159	183	190	176	287	616	279	107	278	183	205	105	117	214	252	178	77	312	262	306	227	382
Nov. 26-----	1	73	151	247	200	86	---	11	225	16	175	11	249	620	214	39	229	237	276	214	108	173	224	91	126	260	183	110	146	183
Nov. 27-----	1	94	17	251	194	290	---	38	143	223	268	216	67	600	159	147	264	104	73	216	192	272	59	138	92	142	296	---	229	192
Nov. 28-----	3	354	9	169	138	27	---	31	102	68	235	62	70	520	81	92	104	50	252	194	165	225	337	71	48	364	287	---	246	332
Nov. 29-----	2	350	38	392	65	354	---	63	156	284	206	208	297	576	226	155	310	119	268	87	56	239	310	154	54	226	289	375	235	394
Nov. 30-----	2	339	12	389	18	---	---	45	164	283	223	236	272	624	295	123	321	196	268	90	102	232	300	183	58	263	286	222	245	395
Dec. 1-----	1	334	10	320	92	---	---	30	73	68	133	56	147	607	289	167	196	207	227	113	204	179	290	91	46	365	284	(90)	228	331
Dec. 2-----	1	323	59	155	13	105	---	31	46	203	164	133	173	649	224	225	105	160	222	68	146	238	295	133	70	356	266	211	223	270
Average-----	1	267	42	275	103	172	---	36	130	156	201	132	182	600	213	136	218	153	226	140	139	223	259	123	70	282	270	(201)	221	300

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

Values in parentheses are interpolated.

* Sun below horizon.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

NOVEMBER 1958

	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, New York	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Madison, Wis.	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Moosonee, Ontario	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	Normandin, Quebec	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	
1958																															
Nov. 5-----	246	230	200	327	100	120	430	233	140	240	96	375	337	159	338	320	85	16	161	454	440	76	121	278	262	49	327	67	375	189	
Nov. 6-----	153	337	138	128	174	286	424	156	213	259	312	370	294	324	310	346	357	---	68	459	437	44	374	141	231	102	303	307	252	167	
Nov. 7-----	212	289	220	384	406	316	416	175	262	211	93	363	147	396	245	286	211	---	138	439	430	69	357	252	296	117	112	377	342	158	
Nov. 8-----	184	320	226	364	342	36	415	185	351	309	181	363	366	326	---	285	63	87	136	329	429	166	287	249	199	199	312	251	373	153	
Nov. 9-----	110	321	108	227	375	114	400	158	318	253	309	352	374	210	294	123	49	20	75	439	423	58	290	67	218	44	325	291	378	72	
Nov. 10-----	124	330	---	350	407	309	365	32	402	281	298	344	342	381	133	103	336	20	269	407	411	47	366	74	65	90	307	343	396	36	
Nov. 11-----	222	205	137	366	388	293	251	197	398	143	248	181	299	369	260	(210)	297	86	176	429	387	18	344	282	293	112	266	361	275	80	
Average-----	179	290	172	307	313	211	386	162	298	242	218	335	307	333	249	(264)	210	49	157	420	422	68	277	197	230	102	279	285	342	122	
Nov. 12-----	180	162	118	355	383	176	---	276	390	187	175	216	211	338	261	(274)	219	33	148	430	270	131	320	284	312	132	153	327	212	225	
Nov. 13-----	107	310	135	345	365	227	---	105	118	217	270	348	180	309	303	316	52	102	18	369	266	122	325	244	51	192	151	323	229	230	
Nov. 14-----	174	266	34	309	247	64	---	24	171	160	223	313	97	38	263	215	101	9	127	435	395	51	93	183	158	22	64	162	125	58	
Nov. 15-----	71	252	92	145	237	31	---	26	180	84	283	341	44	311	365	331	41	---	150	438	88	45	311	102	67	117	44	40	164	60	
Nov. 16-----	113	142	155	283	307	51	---	21	231	149	103	290	125	171	---	373	38	---	233	385	154	37	120	73	58	126	100	40	108	174	
Nov. 17-----	---	244	212	59	297	127	---	39	---	302	192	361	44	123	---	319	19	---	117	383	428	50	301	77	25	30	33	193	246	32	
Nov. 18-----	201	---	146	161	240	128	---	149	66	284	201	351	245	234	344	351	86	4	148	264	423	45	40	52	39	21	189	277	359	28	
Average-----	141	229	127	237	296	115	---	91	193	198	207	317	135	218	307	(311)	79	37	134	386	289	69	216	145	101	91	105	194	206	115	
Nov. 19-----	200	318	93	163	251	288	---	203	363	196	201	342	308	352	339	337	303	22	49	268	418	35	348	49	93	51	284	338	---	35	
Nov. 20-----	120	310	66	353	327	268	---	244	381	247	247	309	301	327	330	340	120	76	93	266	385	22	291	258	243	---	271	317	344	145	
Nov. 21-----	185	---	67	337	365	194	382	167	394	293	210	257	293	339	292	312	66	76	60	371	351	88	312	232	200	81	264	314	295	131	
Nov. 22-----	124	307	165	333	360	239	382	84	379	282	266	329	302	296	312	325	285	4	27	416	254	63	321	229	198	101	269	314	344	179	
Nov. 23-----	110	302	97	252	263	169	383	110	318	231	248	330	198	257	299	323	141	53	32	324	279	50	159	246	249	73	159	226	250	24	
Nov. 24-----	77	176	23	249	---	48	231	20	292	204	140	204	75	115	171	194	---	5	44	179	146	101	209	90	145	125	189	268	66	96	
Nov. 25-----	181	285	177	249	259	20	296	223	274	183	236	183	268	279	151	164	23	11	23	319	295	98	273	250	234	161	220	247	188	207	
Average-----	142	283	98	276	304	175	335	150	343	234	221	279	249	281	271	285	156	35	47	306	304	65	273	194	195	99	237	289	248	117	
Nov. 26-----	211	117	180	88	72	281	304	5	105	267	228	144	294	146	177	177	184	6	28	226	365	46	77	25	19	27	282	32	304	60	
Nov. 27-----	170	137	187	284	302	224	357	170	119	255	162	317	91	96	248	246	---	---	69	384	183	113	203	246	280	107	107	210	57	176	
Nov. 28-----	104	294	128	39	41	---	366	24	129	255	259	328	316	110	289	301	139	6	177	385	394	106	20	38	19	65	283	24	366	36	
Nov. 29-----	92	285	44	321	353	243	369	176	384	139	255	326	151	314	319	322	283	6	165	311	306	125	342	235	249	139	160	321	335	177	
Nov. 30-----	151	288	57	320	340	261	365	176	353	152	175	324	292	255	315	321	136	22	75	145	192	114	271	256	276	135	255	301	214	202	
Dec. 1-----	168	277	89	229	150	258	362	75	219	195	236	322	283	142	310	311	212	10	97	245	272	58	178	64	96	84	255	190	18	81	
Dec. 2-----	165	256	99	159	74	110	340	166	245	225	240	303	184	42	312	313	105	27	165	349	366	96	40	195	225	144	146	69	111	189	
Average-----	152	236	112	206	190	229	352	113	222	213	219	295	230	158	282	284	177	13	111	292	297	94	162	151	166	100	213	164	200	132	

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

NOVEMBER 1958

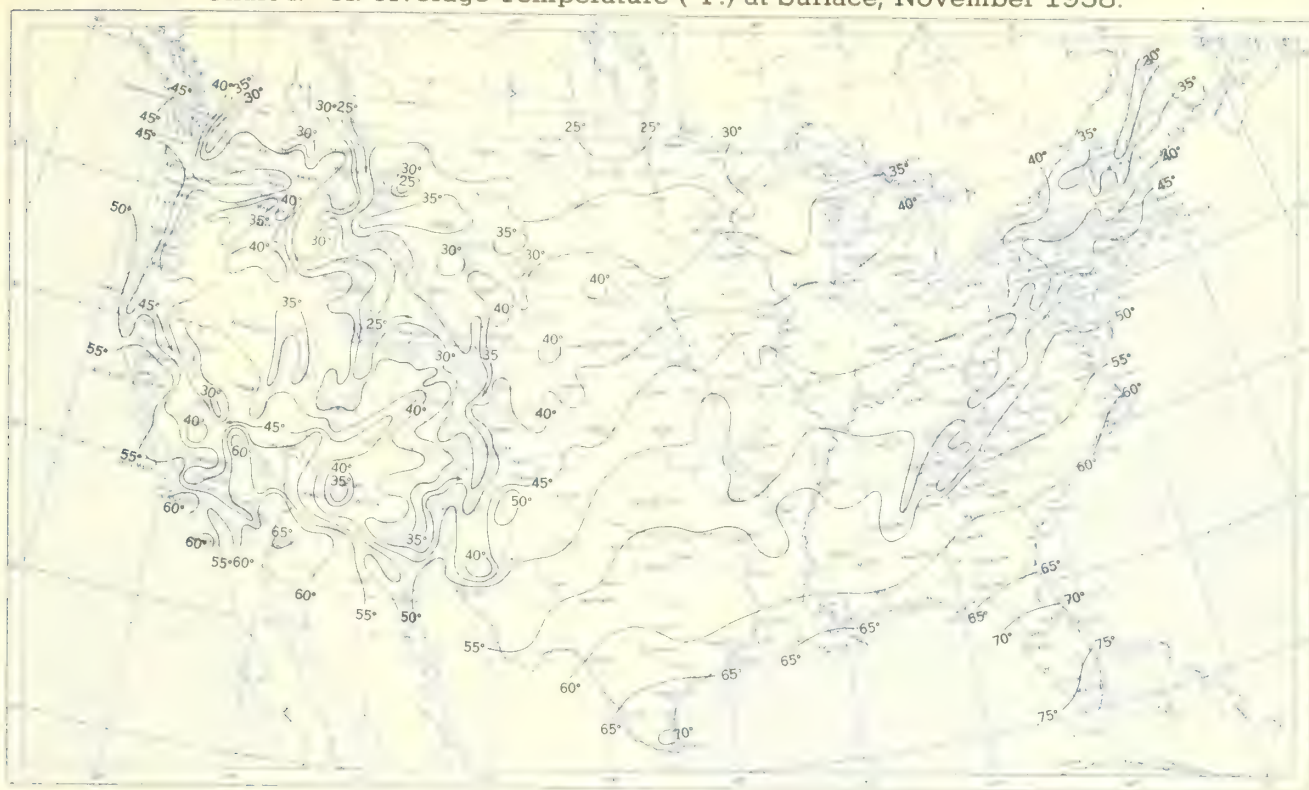
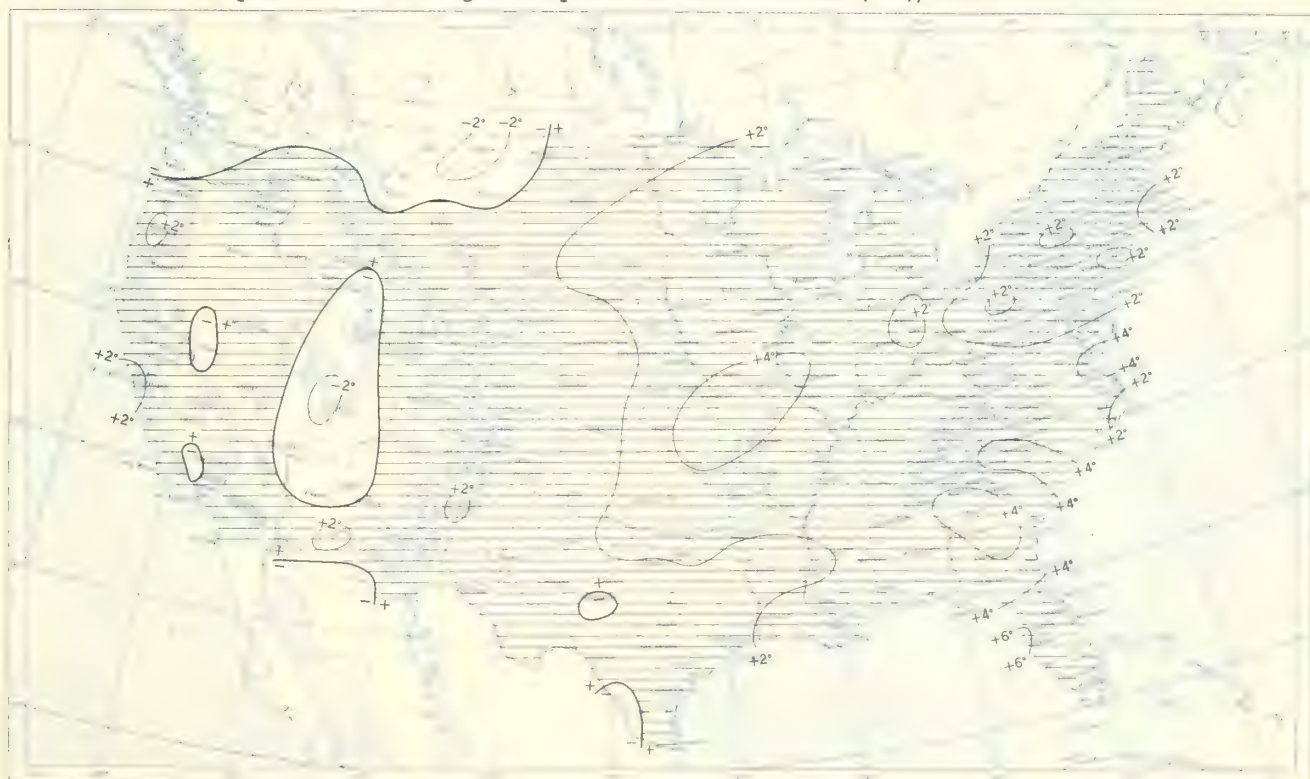
1958	Portland, Me.	Pullman, Wash.	Raleigh, N. C.	Rapid City, S. Dak.	Resolute, NWT	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Savville, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Seattle, Wash. (U. of W.)	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Toronto, Ontario	Tucson, Ariz.	Wake Island Pacific Area	(Silver Hill Obs.)	Winnipeg, Manitoba
Nov. 5-----	540	180	285	284	1	370	246	211	350	---	333	265	57	58	91	105	249	243	125	424	545	319	74
Nov. 6-----	142	42	244	269	1	384	239	395	388	121	198	251	84	41	100	75	319	319	146	412	573	281	117
Nov. 7-----	242	256	346	110	**	354	106	417	366	189	328	252	50	35	416	176	198	364	224	415	556	320	40
Nov. 8-----	273	189	348	233	---	346	25	379	345	34	320	201	126	123	207	178	178	211	99	408	546	314	76
Nov. 9-----	---	66	291	280	---	338	195	422	159	74	194	193	136	14	390	26	230	323	141	409	572	203	182
Nov. 10-----	---	204	348	247	---	77	240	399	325	166	100	48	102	71	394	129	74	395	157	353	520	154	56
Nov. 11-----	257	167	350	283	---	65	241	257	(367)	176	325	235	49	65	380	130	253	464	185	370	557	299	183
Average-----	291	158	316	243	---	276	184	354	(328)	127	257	206	72	58	282	118	197	336	154	399	553	270	104
Nov. 12-----	264	---	329	219	---	333	179	166	375	228	344	238	26	21	374	37	280	372	244	387	541	229	162
Nov. 13-----	515	109	323	251	---	355	210	268	364	76	102	193	64	57	294	181	122	300	58	393	511	251	68
Nov. 14-----	38	156	247	59	---	272	116	292	291	106	237	63	79	49	96	95	100	424	80	376	388	270	56
Nov. 15-----	126	192	170	22	---	370	89	214	315	225	86	44	205	191	345	189	38	419	26	203	529	85	46
Nov. 16-----	83	235	219	53	---	394	13	143	386	35	94	41	208	153	205	199	21	419	51	48	483	79	49
Nov. 17-----	42	217	53	173	---	372	28	117	374	21	51	29	74	47	144	167	46	353	48	433	472	30	62
Nov. 18-----	29	46	163	244	---	381	4	268	359	70	74	75	19	17	65	70	207	365	59	415	519	62	66
Average-----	157	159	215	146	---	354	97	210	352	109	141	97	96	76	218	134	116	379	81	322	492	144	73
Nov. 19-----	33	39	137	162	---	369	189	381	324	85	99	82	102	97	391	65	250	389	138	399	459	174	132
Nov. 20-----	176	40	335	242	---	373	195	357	333	56	284	190	31	44	349	87	257	373	209	382	---	289	165
Nov. 21-----	121	175	322	234	---	330	141	372	344	140	222	181	91	78	352	93	224	367	151	---	493	272	89
Nov. 22-----	231	98	305	207	---	354	72	228	348	61	240	200	18	18	344	32	168	403	217	296	410	---	55
Nov. 23-----	167	45	279	97	---	358	48	245	342	106	308	165	83	---	309	44	244	293	82	329	499	258	93
Nov. 24-----	112	108	199	152	---	244	103	245	163	95	155	48	82	18	289	121	46	344	99	356	514	102	102
Nov. 25-----	220	221	272	248	---	195	42	345	206	34	302	228	191	---	310	179	232	369	105	277	546	283	74
Average-----	151	104	264	192	---	318	113	310	294	82	227	156	86	51	336	89	203	362	143	340	487	255	102
Nov. 26-----	8	25	106	205	---	179	174	211	247	169	58	16	176	114	92	189	60	334	136	152	467	84	149
Nov. 27-----	223	132	144	242	---	286	218	43	302	209	292	187	168	155	99	180	152	311	139	280	379	293	161
Nov. 28-----	50	160	98	196	---	348	171	256	324	142	38	30	140	113	141	146	27	346	17	346	463	35	137
Nov. 29-----	---	62	316	122	---	356	205	308	332	134	249	114	77	53	355	42	170	93	185	353	471	281	147
Nov. 30-----	215	108	307	197	---	337	95	150	338	116	297	220	37	31	235	87	259	366	208	347	439	283	73
Dec. 1-----	116	32	186	206	---	346	182	72	338	99	126	98	78	91	49	38	206	353	86	---	499	135	127
Dec. 2-----	307	36	153	217	---	333	79	345	319	95	260	178	19	150	180	117	123	302	117	356	470	252	54
Average-----	153	79	187	198	---	312	161	198	314	138	189	121	99	82	160	100	143	301	127	306	456	192	121

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

Values in parentheses are interpolated.

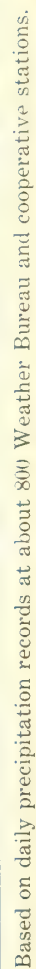
** Polar nite begins November 7th.

USCOMM-WB-Asheville - 1 30 59 - 1850

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, November 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), November 1958.

A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.



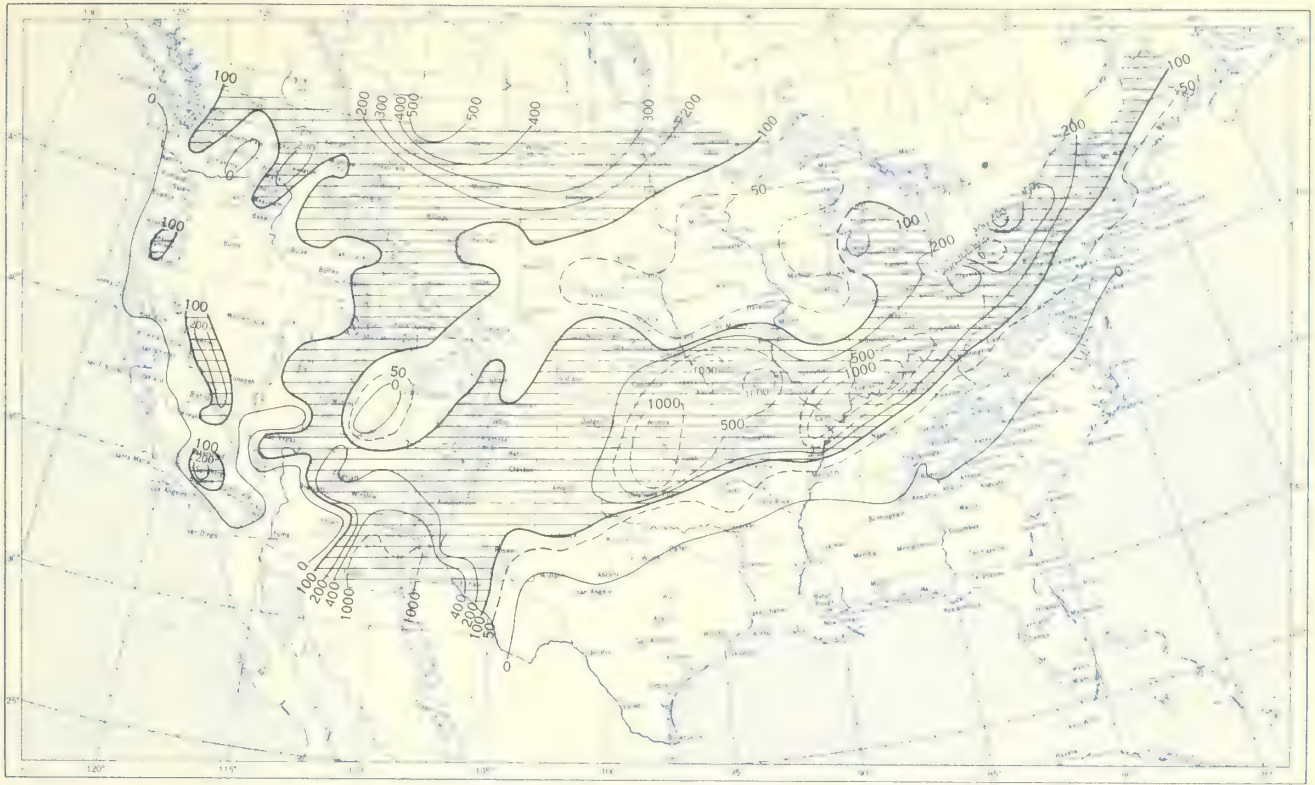


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.



This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, November 1958.

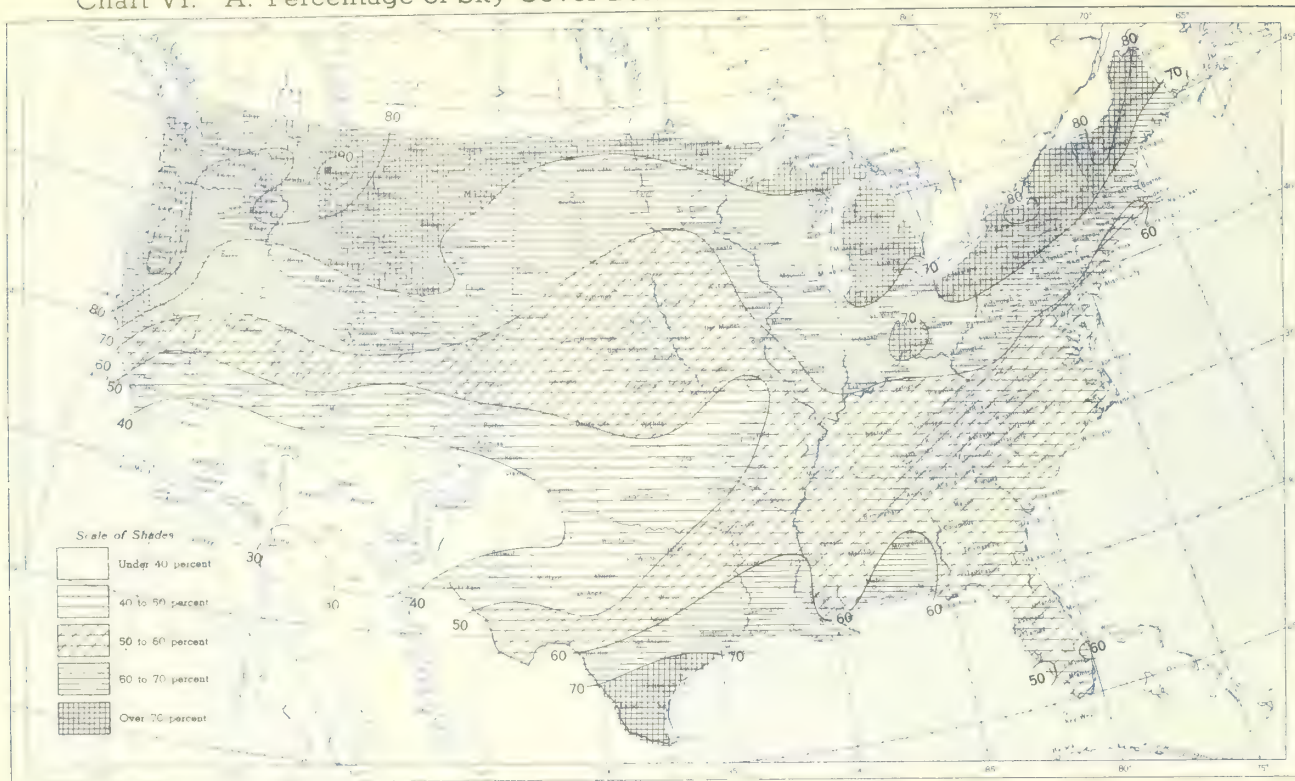


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., November 24, 1958.

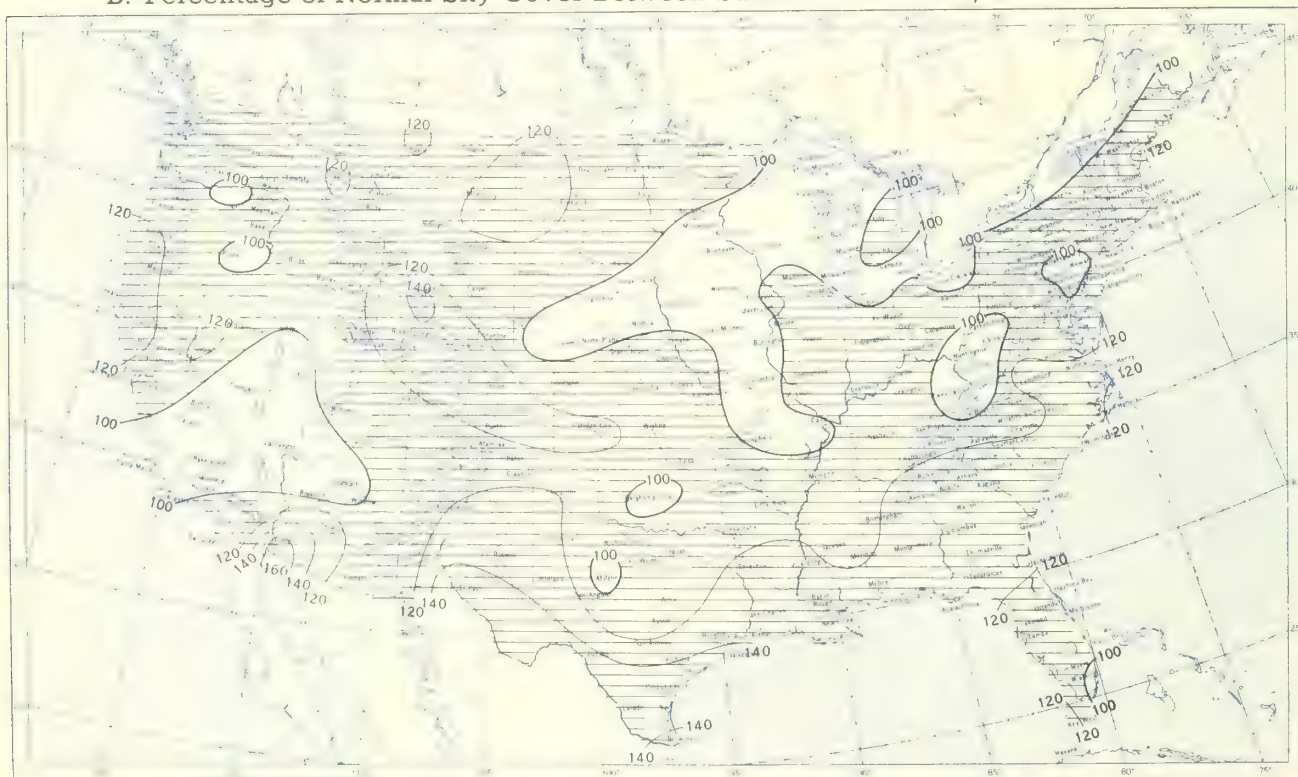


A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
 B. Shows depth currently on ground at 7:00 a. m. E. S. T., of the Monday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, November 1958.

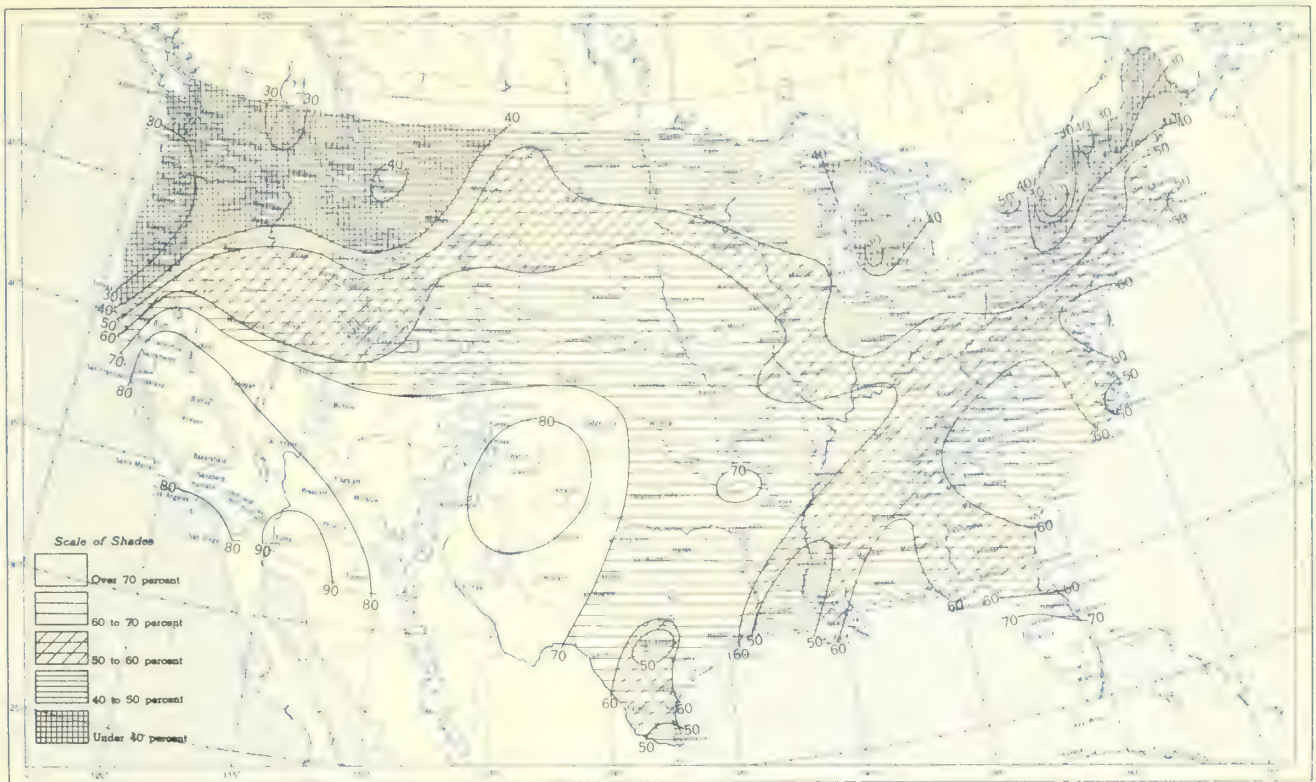


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, November 1958.

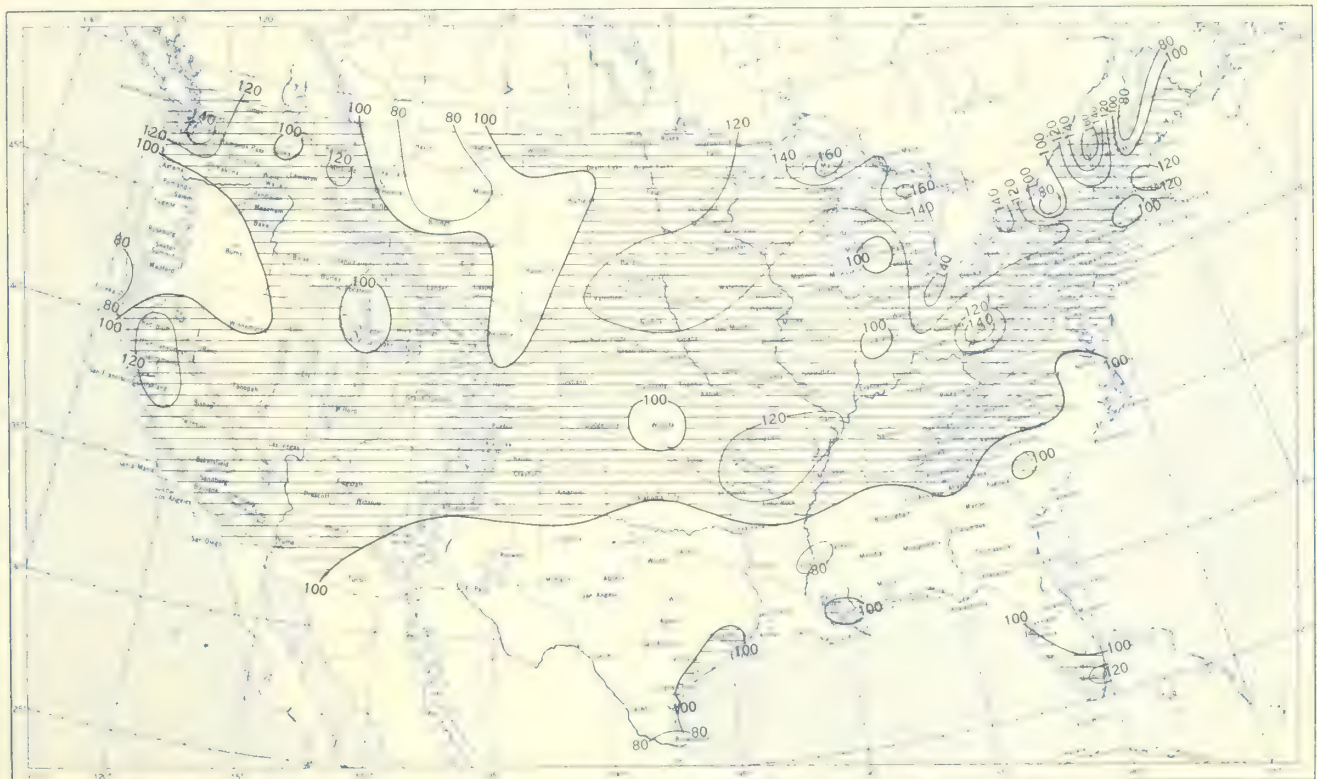


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, November 1958.



B. Percentage of Normal Sunshine, November 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

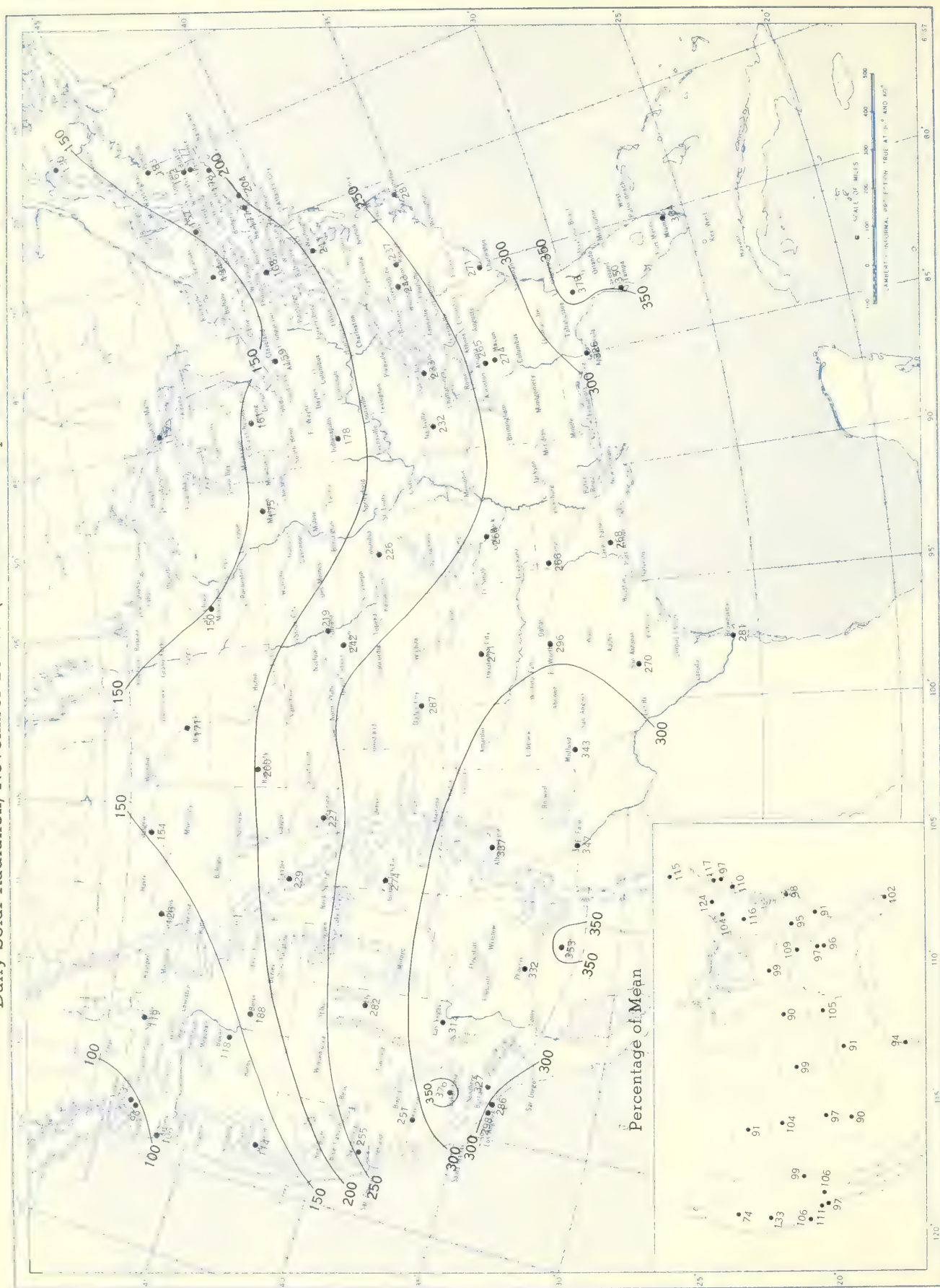


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, November 1958

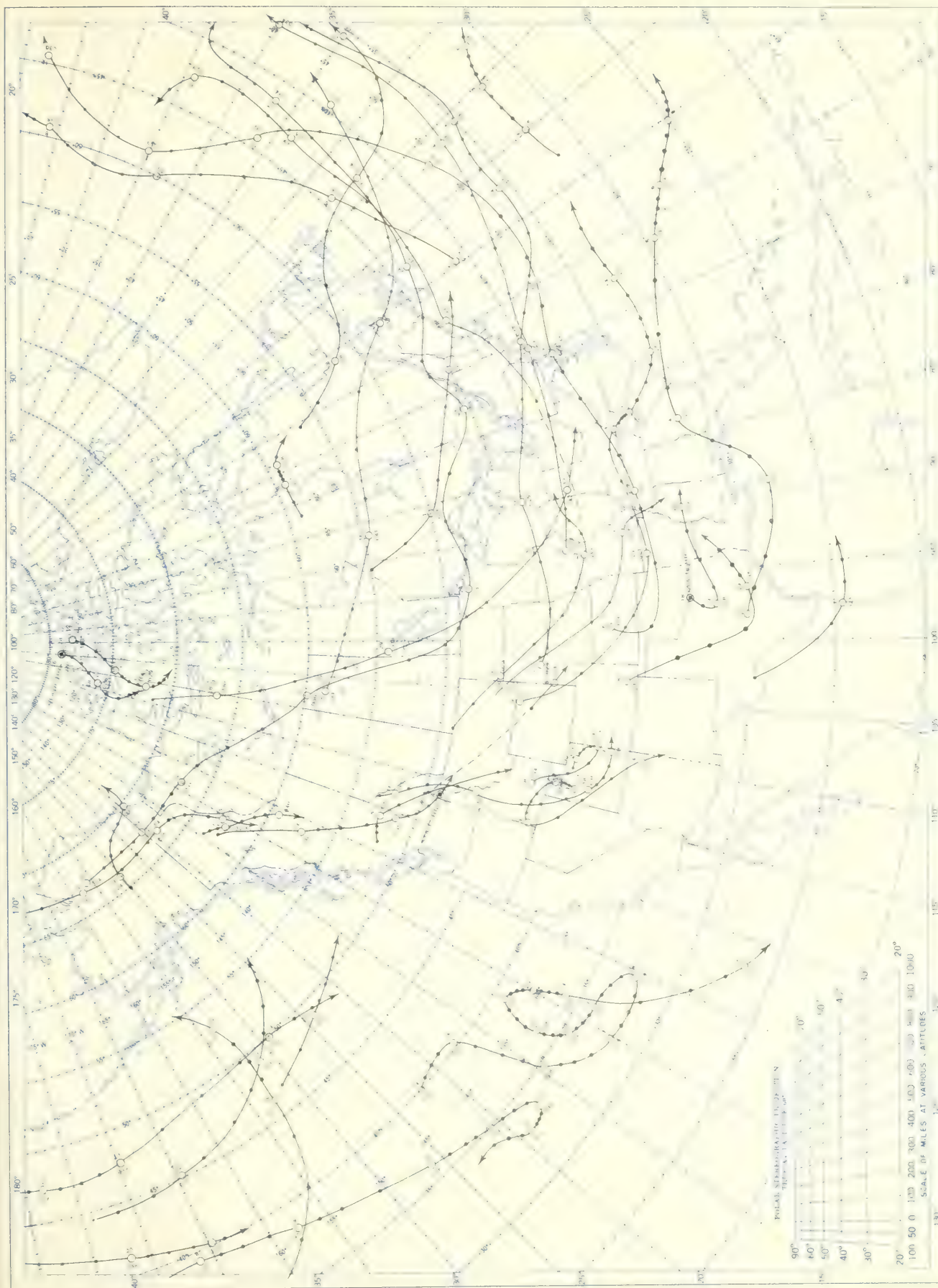
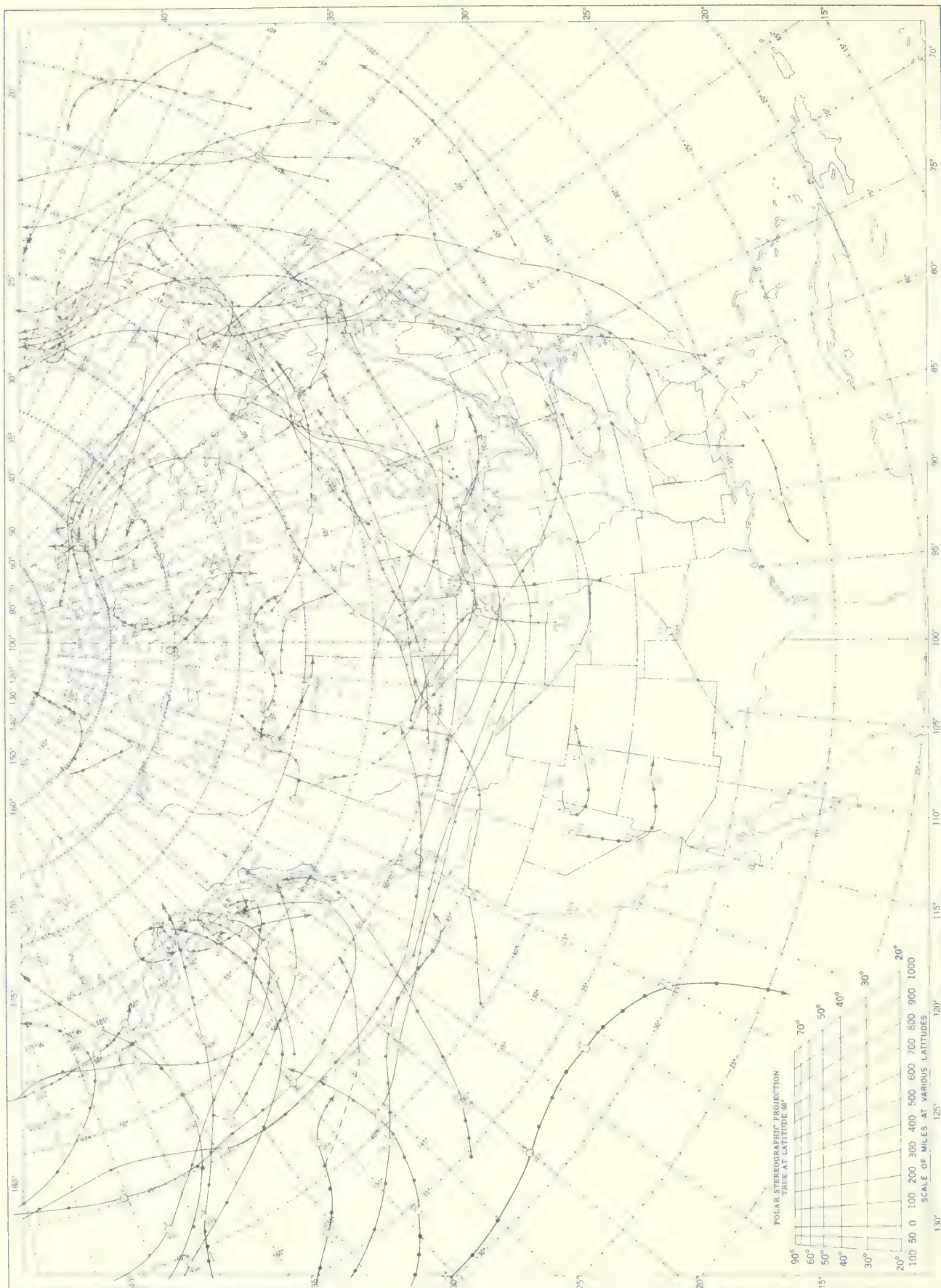


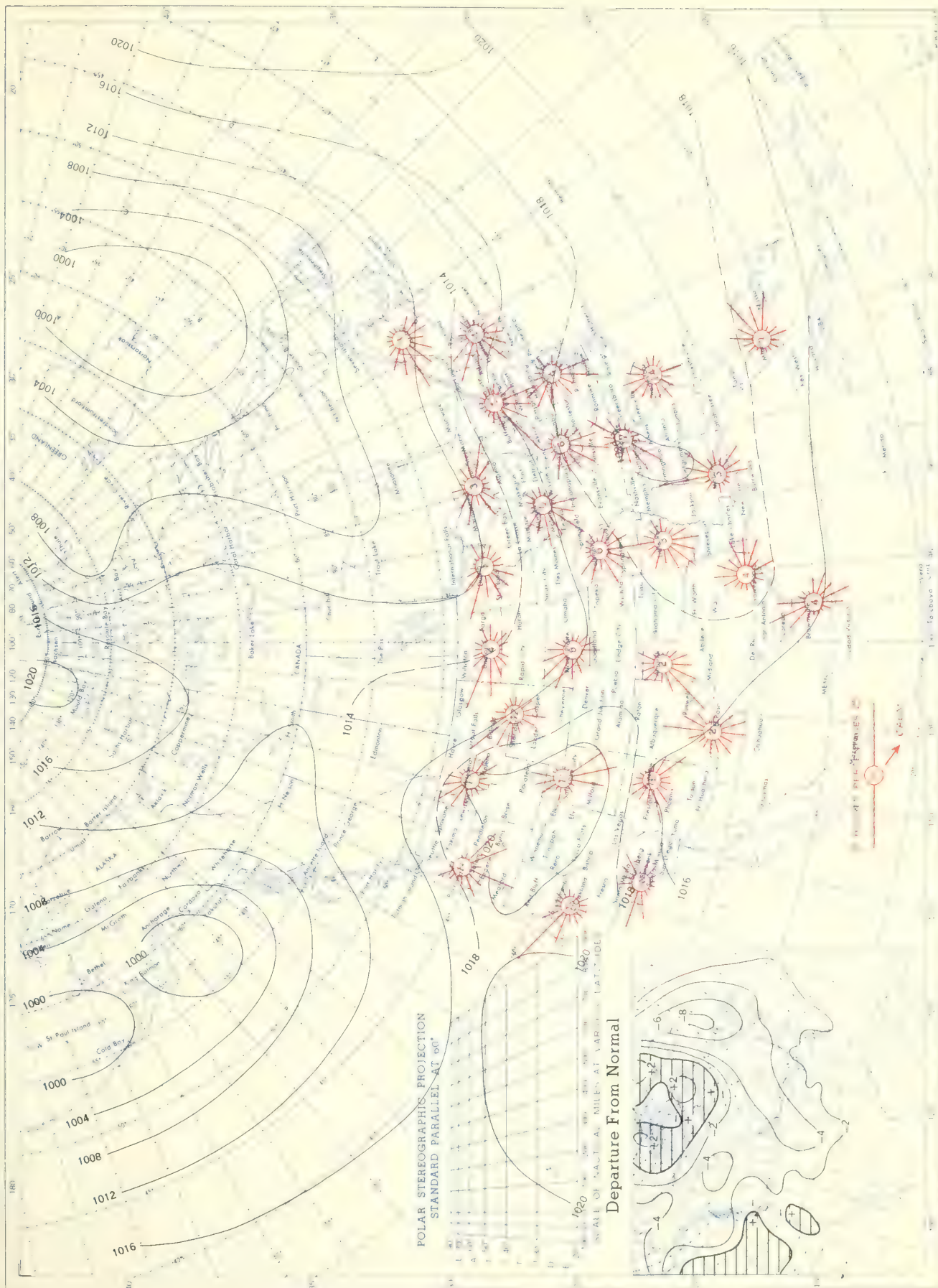
Chart X. Tracks of Centers of Cyclones at Sea Level, November 1958.



Circle indicates position of center at 7:00 a. m. E. S. T. See (Chart IX for explanation of symbols.

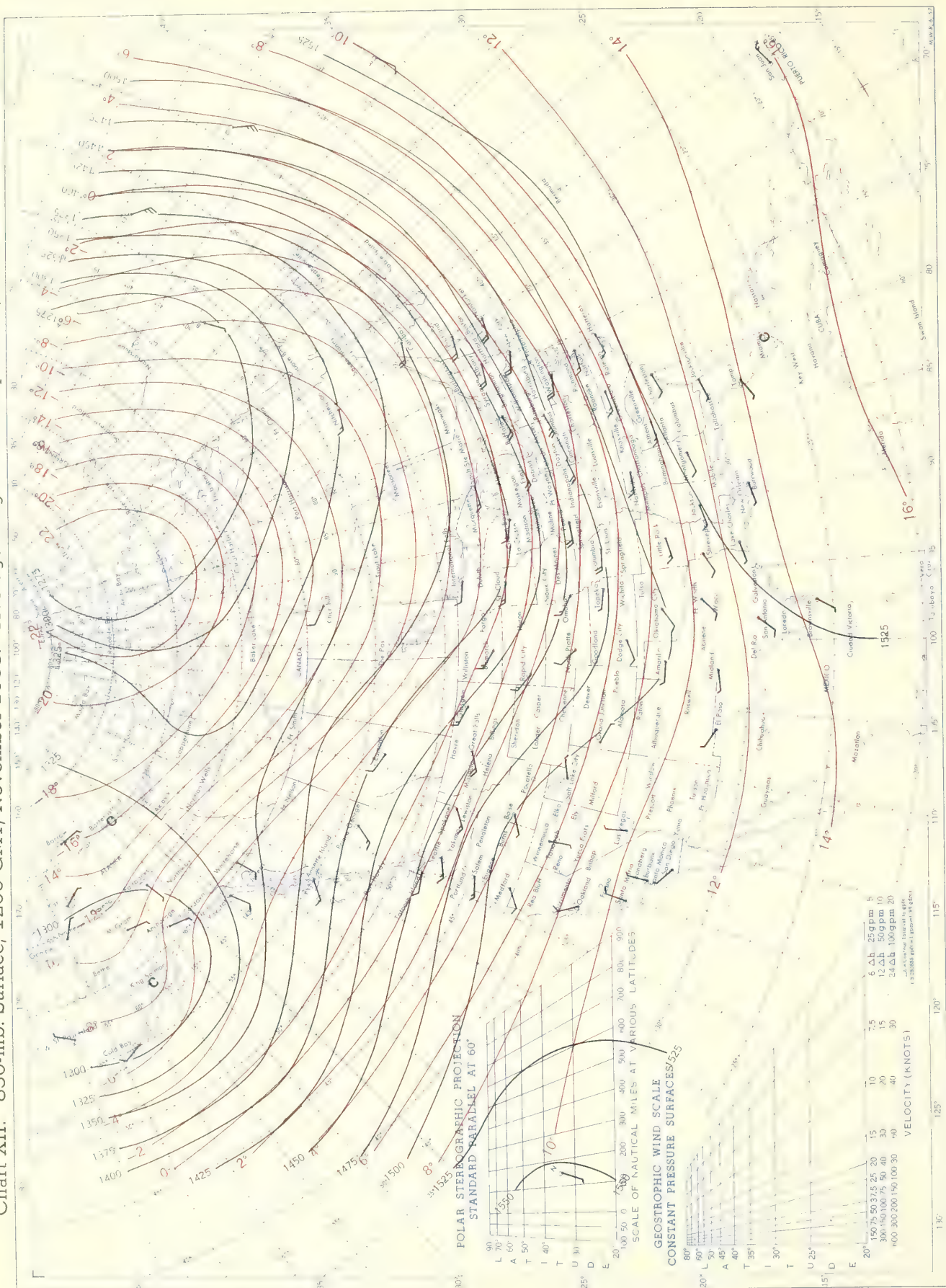
Average Pressure (m.b.) from Normal, November 1958.

Average Pressure (mb.) from Normal, November 1958.



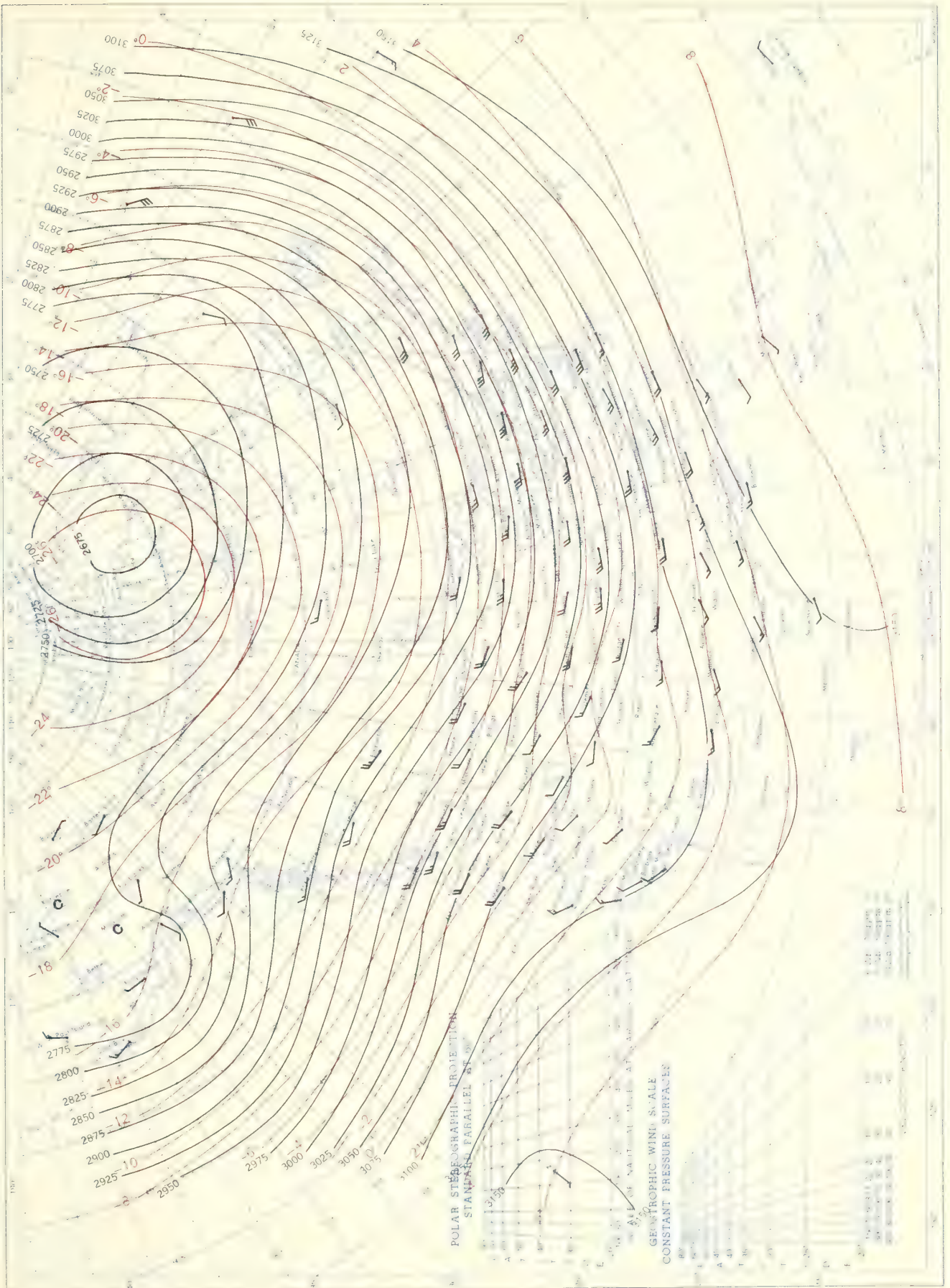
Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E.S.T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, November 1958. Average Height and Temperature, and Resultant Winds.



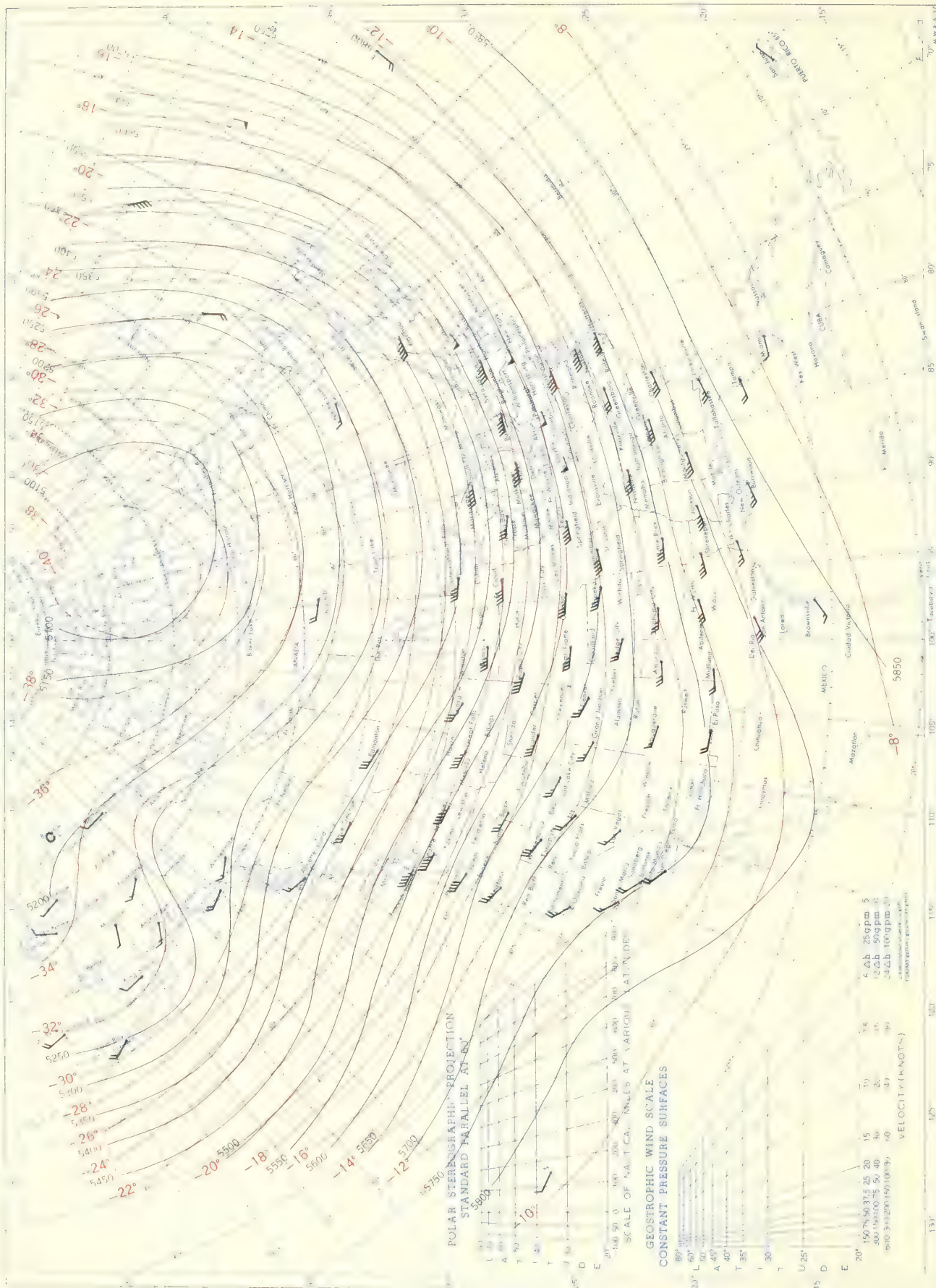
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations, and Resultant Winds.

Chart XIII. 700-mb. Surface, 1200 GMT, November 1958. Average Height and Temperature, and Resultant Winds.



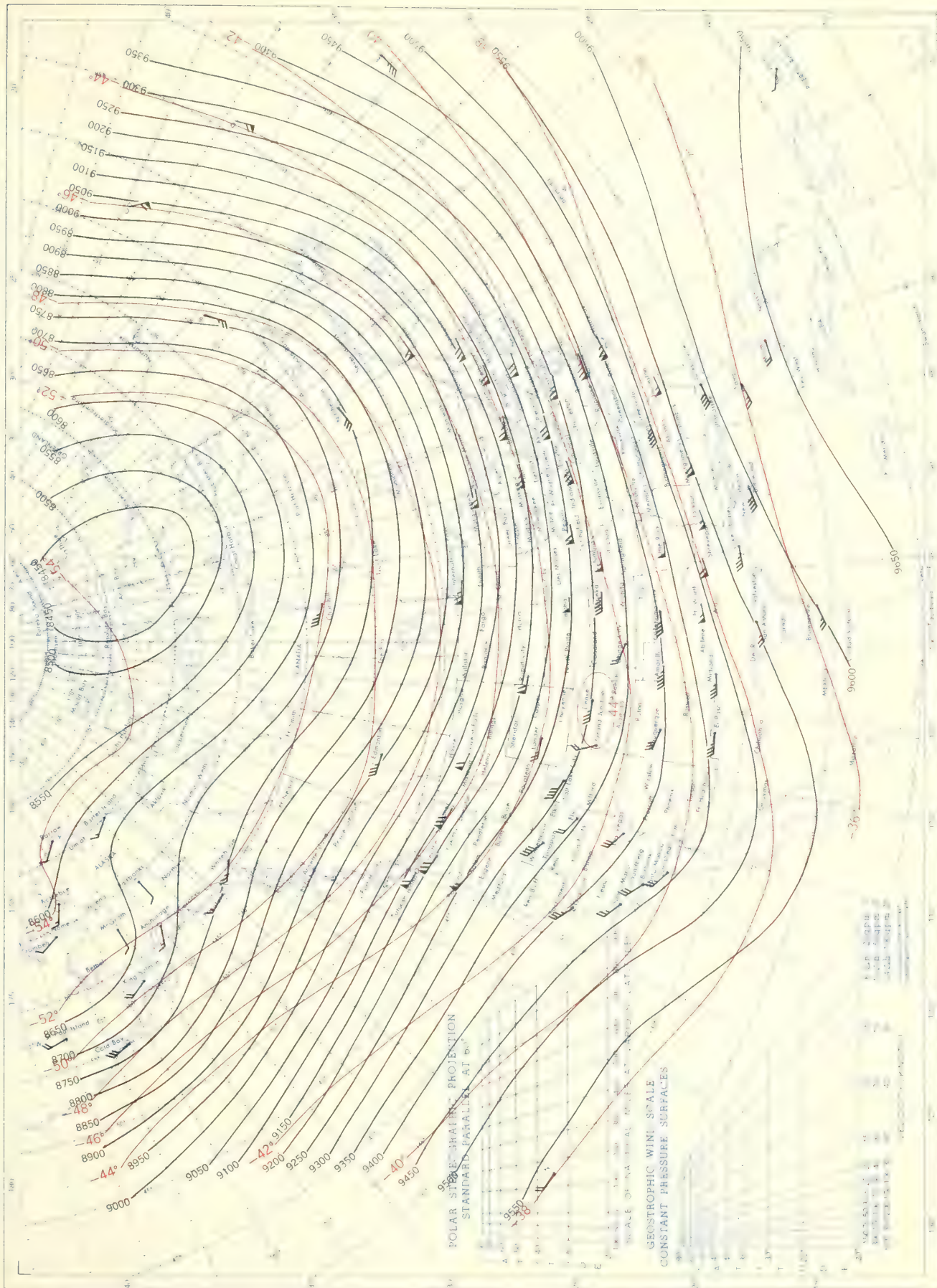
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, November 1958. Average Height and Temperature, and Resultant Winds.



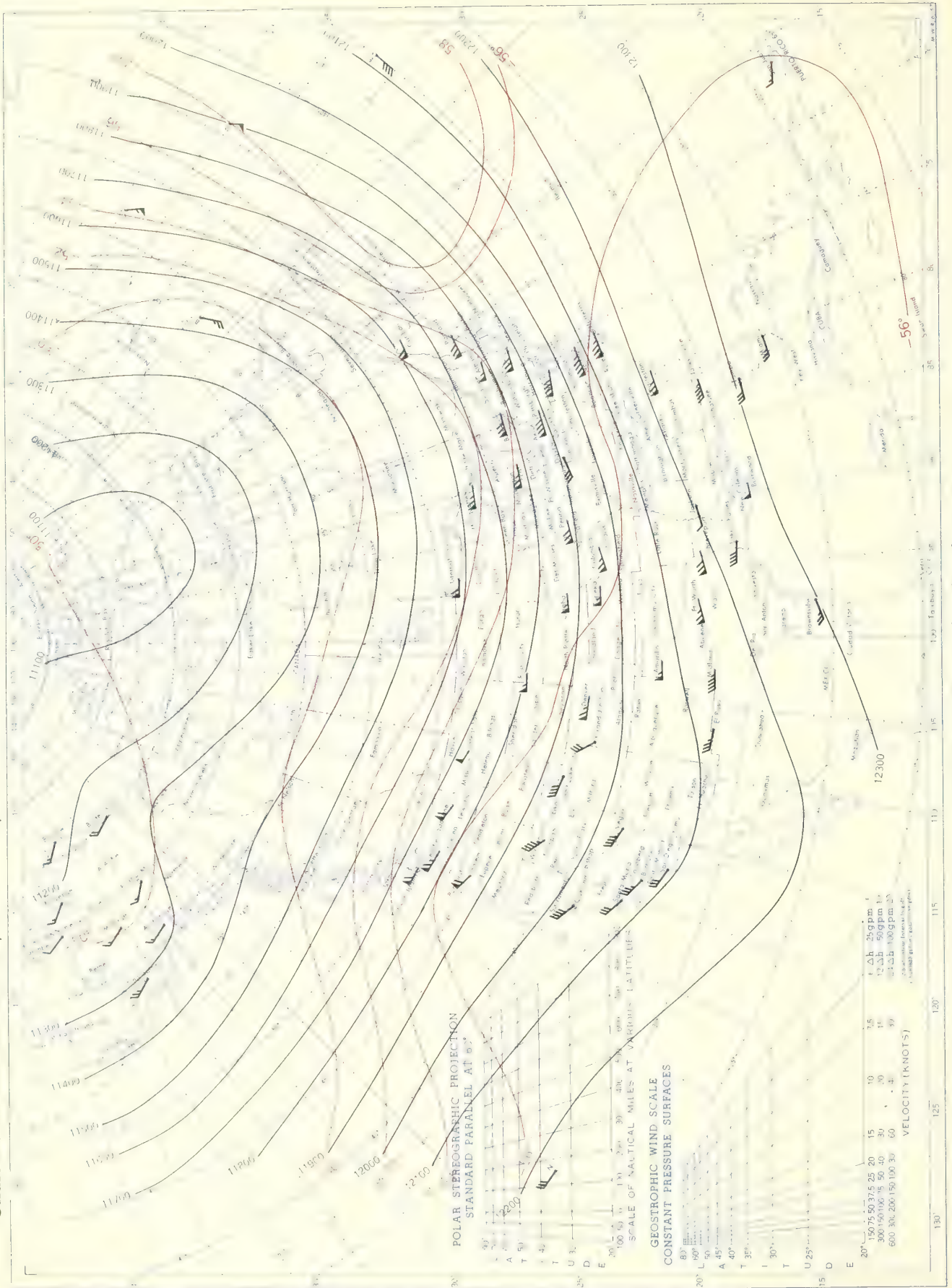
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, November 1958. Average Height and Temperature, and Resultant Winds.



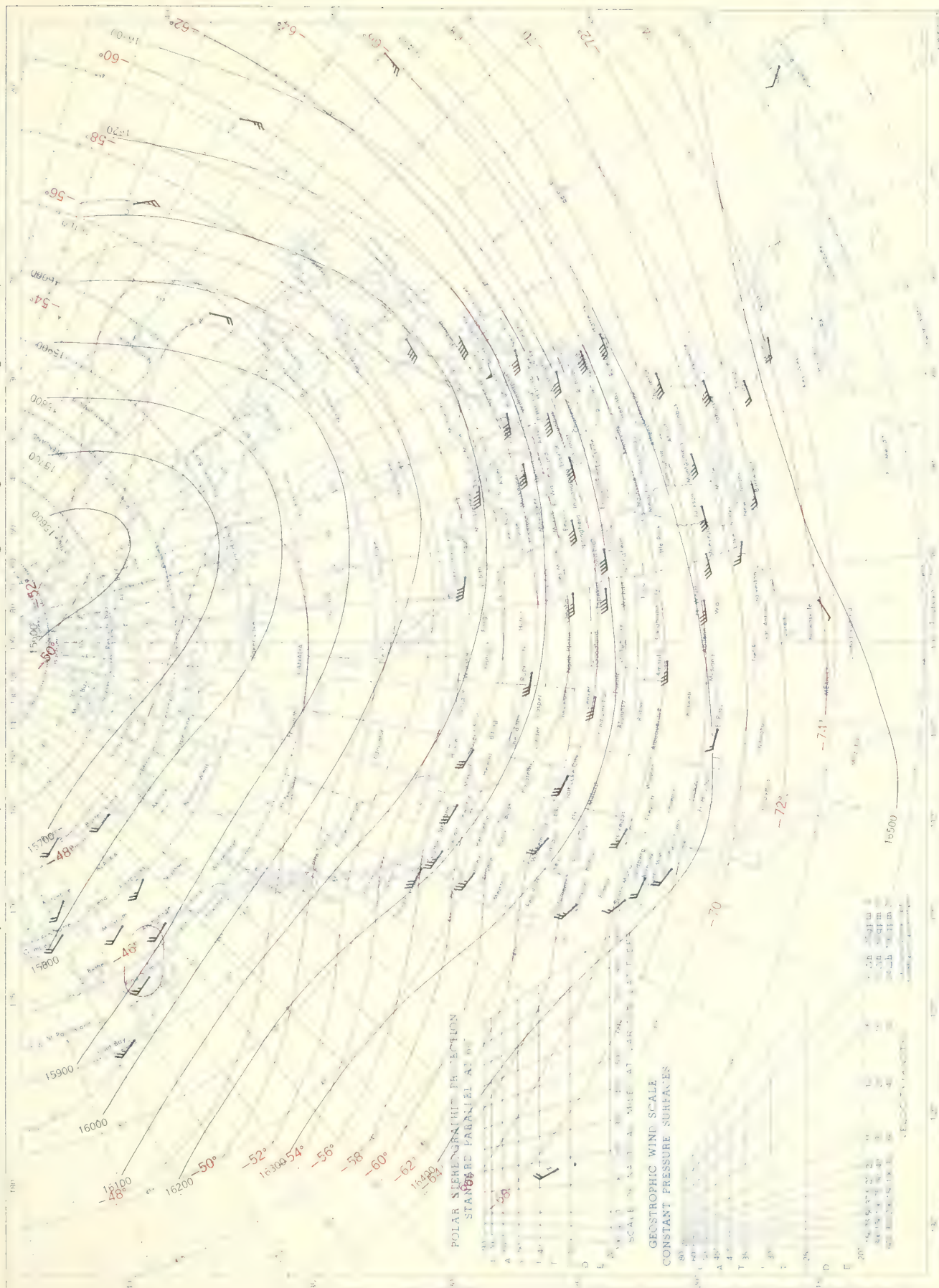
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, November 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, November 1958. Average Height and Temperature, and Resultant Winds.

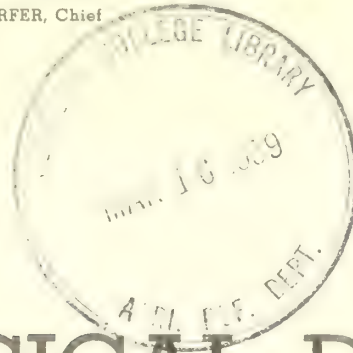


U. S. DEPARTMENT OF COMMERCE

LEWIS L. STRAUSS, Secretary

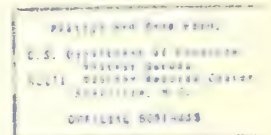
WEATHER BUREAU

F. W. REICHELDERFER, Chief



CLIMATOLOGICAL DATA

NATIONAL SUMMARY



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DECEMBER 1958

Volume 9 No. 12



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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 12

DECEMBER 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

December was abnormally mild west of the Continental Divide, and unusually cold east of the Great Plains. Precipitation was deficient in most of the Nation, by 50 percent in large areas; and above normal amounts, with few exceptions, were limited to the lower Atlantic coast. A record-breaking snowstorm occurred in the Southeast, and heavier than usual amounts fell in the lower Great Plains and Northeast. Few severe local storms occurred, and there was no serious flooding.

TEMPERATURE.--Temperatures averaged above normal at all stations west of the Continental Divide, with average departures as much as 8°; and below normal at all stations from the eastern Great Plains to the Atlantic coast except extreme southern Florida, with average departures ranging up to 10° or more in the extreme Northeast.

In the Far West relatively mild temperatures were unusually persistent, remaining above normal every day at some stations and on all except a few days at most other stations in the area. Several new temperature records for December were established in central and southern sections. A monthly average of 57.5° for downtown San Francisco was the highest for December since official records began there in 1871. Many stations recorded their highest temperatures on record for December among which were the following: Los Angeles, Calif., Airport 94° on the 3d; Red Bluff, Calif., 81° on the 15th; Ely, Nev., 67° on the 3d; Yuma, Ariz., 86° on the 3d; and Roswell, N. Mex., 84° on the 4th.

Temperatures east of the Rockies were featured mainly by an extreme cold spell lasting from about the 5th to the 15th in central and northern areas and from about the 10th to the 16th in some extreme southern areas. Temperatures in northern areas during this period were at subzero levels and daily averages ranged from 15° to 30° or more below normal, while in most southern areas minima were well below freezing and daily averages ranged from 10° to 25° below normal. The temperature averaged -21° at International Falls, Minn., on the 8th and 51° at Ft. Myers, Fla., on the 12th. At some stations in the Great Lakes region and upper Mississippi Valley maxima on a few days were below zero. In Oklahoma lows ranging from zero to a few degrees above were the lowest for December in 30 years at many stations. The mercury touched the zero mark (-6°) at Hartford, Conn., on the 11th, the earliest date on record. A low of -19° at Wabash, Ind., on the 10th was the second lowest temperature ever recorded in that State so early in December, the lowest being -30° at Marengo on the same date in 1917.

Monthly averages were the lowest of record for Caribou, Maine (5.6°); Worcester, Mass. (20.9°); Akron, Ohio (20.6°); Alpena, Mich. (18.2°); Grand Rapids, Mich. (20.5°); and Muskegon, Mich. (21.6°). Owing to the extreme cold, ice in north-central areas was unusually thick at the end of the month. Wisconsin reported that ice thickness on lakes and small streams ranged from 11 to 20 inches, and that frost penetration in the ground in northern areas of the State was 24 to 36 inches which is considered unusually deep there.

PRECIPITATION.--Monthly totals exceeded an inch

in the Pacific Northwest and east of a line joining Buffalo, N. Y., and a point midway between Laredo and Brownsville, Tex., and in a few other widely scattered small areas. In large areas of the remainder of the Nation monthly totals were less than a half inch, and many stations in the Far Southwest reported no precipitation at all. Relatively, the month was extremely dry in most of the country, as totals in most of the Southwest and in large areas of the midcontinent area were less than 25 percent of normal. Above normal amounts with few exceptions were limited to the lower Atlantic coast where heavy amounts fell during the passage of coastal storms from the 10th to the 12th and 27th to the 29th.

This December was among the driest on record at a great number of stations scattered across the Nation. Monthly totals were the least of record for December at Indianapolis, Ind. (0.47 inch), and Fargo, N. Dak. (0.04 inch), and the driest (0.62 inch) since 1835 at Rochester, N. Y., and the third driest (0.34 inch) at Milwaukee, Wis., since 1841.

SNOWFALL.--The most notable snowstorm of the month occurred in the Southeast on the 11th and 12th during the passage of a coastal storm. Some snow fell in most of the Southern States, but the most remarkable falls occurred in the Carolinas and Virginia where 7 and 8 inches covered extensive areas, with extreme amounts of 16 to 18 inches in north-central and northeastern North Carolina. At Raleigh, N. C., a 9.1-inch depth on the 11th and a 10.6-inch total for the month were both new December records there, and a 16-inch fall at Elizabeth City, N. C., was the heaviest fall there on record.

During the last 3 days of the month, snow covered a large area extending from the southwestern Great Plains to the Great Lakes region, with falls ranging up to 12 inches in the Oklahoma Panhandle and up to 6 or 7 inches in other parts of Oklahoma, and in eastern Kansas and western Missouri. On the 28th and 29th, 14.2 inches of snow fell at Albuquerque, N. Mex., in about 18 hours, an amount that was more than twice the previous 24-hour record for that city.

Unusually heavy snows fell east of Lake Ontario in western New York State during the month. On the 8th, Oswego, N. Y., measured a 33-inch fall in 24 hours, 15 inches falling in 3 hours, a new record there for December. Later snows at Oswego during the month boosted the monthly total to over 100 inches, an unusually great amount.

DESTRUCTIVE STORMS.--Storm damage, much lighter than usual, was caused mostly by snow and glaze, and winds which was responsible for spreading brush fires in California. Brush fires in California burned over 21,000 acres and 25 homes in an area north of Los Angeles on the 2d and 3d, and another 60,000 acres and 18 homes north of San Juan Capistrano from the 13th through the 16th. A tornado caused an estimated \$20,000 damage at Sarasota, Fla., on the 11th. Glaze caused line damage in northwestern Washington State from the 6th to the 8th, and in the southwestern part of the State on the 10th and 11th, and in northern Oregon from the 10th to 13th.

CONDENSED CLIMATOLOGICAL SUMMARY

DECEMBER 1958

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		^{°F}			^{°F}			In.		In.
Alabama	Atmore State Farm	85	5	Russellville	6	15	Heflin	4.45	Toney	0.40
Arizona	Bouse	92	3	Klagetoh	-7	29	Shongopovi	4.40	159 Stations	.00
Arkansas	5 Stations	76	5+	Gravette	-4	15+	Marianna 2S	2.38	Mammoth Spring	.22
California	2 Stations	99	4+	White Mountain 2	-2	28	Gasquet RS	9.17	128 Stations	.00
Colorado	Eversoll Ranch	73	3	2 Stations	-38	30	Grand Lake 1N	2.65	Pueblo Ordnance Dep	.00
Connecticut	Bulls Bridge Dam	54	5	Putnam	-13	11	Groton	2.51	Salisbury	.66
Delaware	3 Stations	62	3	Georgetown 5SW	-7	16	Selbyville	4.96	Middletown 2S	.91
Florida	Miles City Tower	88	6	Chipley 3E	22	16	Fort Lauderdale	20.45	Woodruff Dam	1.05
Georgia	2 Stations	82	5	Blairsville Exp. Sta.	2	16	Flat Top	4.82	Folkston 3SSW	1.42
Idaho	do	81	3	Obsidian 3SSE	-14	29	Burke 2ENE	7.33	Howe	.21
Illinois	3 Stations	82	19	5 Stations	-20	10+	Albion	1.36	Havana #2	.03
Indiana	Jeffersonville	63	19	3 Stations	-19	10+	La Porte	1.85	W. Lafayette 6NW	.08
Iowa	Sioux City WB AP	60	2	Spencer 1N	-27	9	Maquoketa	.97	Glenwood 6SE	.00
Kansas	3 Stations	72	3	3 Stations	-10	13	La Cygne	1.69	Lakin	T
Kentucky	Benton 2	66	19	Cynthiana 2	-5	1	Middlesboro	4.27	Elizabethtown	.15
Louisiana	2 Stations	83	5+	3 Stations	13	16+	Lake Charles	4.06	2 Stations	.00
Maine	4 Stations	48	6	Squa Pan Dam	-31	22	Bar Harbor	3.32	Presque Isle	.71
Maryland	do	63	31+	Oakland 1SE	-15	26	Salisbury CAA Airport	4.01	Luke	.33
Massachusetts	Sandwich	56	5	Birch Hill Dam	-23	22	2 Stations	2.76	Pittsfield WB AP	.90
Michigan	Adrian	52	29	Pellston CAA Airport	-31	20	Houghton CAA Airport	6.27	2 Stations	.14
Minnesota	Luverne	55	2	Big Falls Ranger Sta.	-36	8	Hibbing Power Sub. Sta.	1.26	4 Stations	T
Mississippi	2 Stations	79	5	2 Stations	2	15	Woodville	3.41	Lexington 2NNW	.61
Missouri	Ozark Beach	70	23+	Mount Vernon 3SW	-8	15	Caruthersville	1.97	Summersville	T
Montana	5 Stations	64	3+	Lonsome Lake	-42	8	Essex	5.43	Saco Nelson Res	.03
Nebraska	Trenton Dam	71	4	Valentine WB Airport	-21	14	Kimball	1.38	5 Stations	.00
Nevada	Indian Springs	79	4	Mountain City RS	-6	29	Jarbridge	1.59	15 Stations	.00
New Hampshire	2 Stations	47	6+	Monroe 5NNE	-31	23+	Dublin	2.86	Fabyan	.64
New Jersey	Belleplain	60	5	Layton 3NW	-10	11	Belleplain	2.73	High Point Park	.74
New Mexico	Hagerman	87	5	Gavilan	-34	31	Sandia Crest	2.63	36 Stations	.00
New York	3 Stations	55	5	Elizabethtown	-28	22	Oswego Teachers College	6.88	Barker 4NE	.17
North Carolina	do	73	5	Siler City	-8	12	Yanceville 2NNE	8.81	Santeetlah Dam	1.76
North Dakota	Fullerton	55	3	Medora 3NNE	-33	14	Walhalla	1.01	6 Stations	T
Ohio	Columbus WB Airport	61	29	Mansfield 6W	-20	11	Geneva 3SW	1.98	Defiance Power Plant	.07
Oklahoma	Hollis	78	4	2 Stations	-6	14+	Okmulgee	2.47	Tipton 4S	.14
Oregon	Powers	72	10+	Seneca	-2	13	Valsetz	18.14	Adel 3SW	.15
Pennsylvania	2 Stations	58	30+	2 Stations	-21	11	Edinboro 7SW	2.78	East Brady	.28
Rhode Island	Block Island WB AP	56	5	Greenville	-2	22	Block Island WB AP	2.20	Kingston	1.48
South Carolina	Yemassee 4W	78	6	Chester 2WSW	0	12	Landrum 5ENE	5.68	Summersville 2WNW	1.54
South Dakota	Rapid City	67	3	Camp Crook	-33	14	Lead	1.33	2 Stations	T
Tennessee	2 Stations	73	4	Mountain City 2	-5	16	Rogersville 1NE	4.70	Oak Hill	.40
Texas	4 Stations	88	5+	Follett	0	13	Provident City	8.06	Numerous Stations	.00
Utah	Wah Wah Ranch	71	5	Soldier Summit	-15	30	Alta	5.27	22 Stations	.00
Vermont	Enosburg Falls	45	4	West Burke	-34	23+	Searsburg Mountain	1.96	Rutland	.71
Virginia	4 Stations	69	5	Walkerton	-7	16	Galax Radio WBOB	7.00	Winchester 2SSW	.54
Washington	Prosser	68	3	Chesaw	-3	14	Cougar 1E	23.28	White Swan	.44
West Virginia	2 Stations	65	30+	Hopemont	-18	26	Bluefield Mercer Co AP	3.16	Petersburg	.21
Wisconsin	3 Stations	49	28	Brule Island	-35	21	Gurney	1.84	2 Stations	.06
Wyoming	2 Stations	66	3	Bondurant	-25	29	Bondurant	2.69	Shoshoni	.00
Puerto Rico	do	94	29+	Garzas Dam	50	28+	Maunabo 1SW	5.85	Fredericksted Fort	.06

+ And also on an earlier date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding

that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

DECEMBER 1956

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind			No. of days				
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	With thunderstorms	Snow, Sleet	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine	
Fl.	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	
ALABAMA																																
Birmingham	610	996.9	1023.1	52	31	41.9	-3.8	66	4	18	15	0	19	31	71	1.29	-3.96	0.41	10	0	3	3	1	7.1	N	26	N	3	10	9	12	
Huntsville	605	999.2	1023.4	49	28	38.8	-3.7	77	5	23	16	0	21	29	72	88	-3.96	39	7	0	7	1	7.1	NNW	21	N	31	12	7	12		
Mobile	211	1013.6	1022.1	59	40	49.8	-3.1	77	5	23	16	0	11	36	68	2.45	-3.96	50	8	0	0	0	11.6	N	21	N	24	9	7	13		
Montgomery	195	1014.2	1022.6	57	36	46.3	-3.7	71	4	21	16	0	11	36	68	2.63	-1.91	1.03	11	0	0	0	6.5	N	21	N	24	9	7	13		
ARIZONA																																
Flagstaff	6993	-----	-----	54	19	36.5	8.1	66	7	10	15+	0	30	---	---	---	-1.86	0	0	0	0	0	1	---	---	---	---	---	---	---	---	---
Phoenix	1109	979.0	1019.0	70	42	56.0	3.9	78	3	33	31	0	0	31	41	0	-.97	0	0	0	0	0	5.4	SE	21	N	15	23	3	3	3	
Prescott	5014	851.0	1022.1	62	28	44.8	7.0	71	4	16	30	0	27	19	---	---	-1.37	0	0	0	0	0	7.2	S	26	N	29	3	3	3	3	
Tucson	2585	929.2	1018.3	71	40	55.6	3.6	82	3	28	29	0	2	25	34	0	-.94	0	0	0	0	0	8.5	SE	29	SE	15	24	3	3	3	
Winslow	4880	856.4	1023.7	56	23	39.6	5.1	74	4	11	30	0	30	13	37	0	-.51	-.02	1	0	0	0	7.0	SE	21	NNW	28	3	3	3	3	
Yuma	199	1013.2	1018.7	78	46	62.1	5.0	86	3	39	21+	0	0	23	26	0	-.53	-.00	0	0	0	0	6.1	N	26	N	28	3	3	3	3	
ARKANSAS																																
Fort Smith	458	1006.1	1023.8	49	28	38.1	-4.4	71	4	4	15	0	20	29	73	97	-2.17	34	4	0	5	0	6.9	ENE	26	N	3	13	7	11	6	
Little Rock	257	1010.5	1024.4	49	31	40.4	-3.5	75	4	12	15	0	17	29	69	1.26	-2.82	50	7	0	5	0	8.7	SW	33	N	3	10	16	11	6	
Texarkana	361	-----	-----	52	34	42.9	-5.1	75	4	16	15	0	16	---	---	---	-5.2	-4.32	14	7	0	8	1	6.2	NE	21	N	24	9	7	13	
CALIFORNIA																																
Bakersfield	494	1003.7	1022.3	66	39	52.4	3.7	80	14	31	24	0	1	39	63	0	-1.01	-.92	1	0	0	0	4.0	ENE	23	ESE	11	14	11	6	4	
Bishop	4108	879.8	1023.0	65	23	44.1	5.0	78	11+	14	25	0	31	---	---	---	-.89	0	0	0	0	0	---	---	---	---	---	---	---	---	---	---
Blue Canyon	5280	843.6	1023.4	56	41	48.7	10.2	75	2	28	28	0	5	---	---	---	-3.15	-5.60	1.73	6	0	9	3	4	7.5	---	33	SSW	26	9	8	11
Burbank	699	993.2	1019.8	74	45	59.7	5.0	92	3	40	25+	0	0	---	---	---	-2.86	0	0	0	0	0	2.1	NNW	17	NNW	31	13	12	1	1	
Eureka (U)	43	1019.6	1022.0	58	47	52.4	3.8	65	14	39	22	0	0	---	---	---	-4.06	-2.03	1.40	11	2	0	0	4.8	---	29	SE	26	2	7	22	
Fresno	331	1009.5	1022.0	63	36	49.6	3.3	76	15	29	31+	0	5	38	70	0	-.32	-1.31	19	3	0	0	3.9	ENE	14	E	27	12	10	9	4	
Los Angeles (U)	312	-----	-----	73	52	62.0	4.7	89	3	45	19	0	0	41	55	0	-.31	-1.11	0	0	0	0	5.8	---	18	N	16	20	6	5	3	
Los Angeles	99	1015.9	1019.7	73	52	62.4	6.8	94	3	43	18	1	0	42	58	0	-.01	-2.60	0	1	0	0	5.1	W	16	SW	31	10	14	7	3	
Mt. Shasta (R)	3544	897.7	1023.7	54	33	43.1	8.4	72	11	22	22	0	11	---	---	---	-2.39	-3.00	1.26	4	0	0	---	---	---	---	---	---	---	---	---	---
Oakland	3	1021.7	1022.0	63	44	53.6	5.0	74	12+	38	29	0	0	44	72	1.49	-1.93	1.01	5	0	0	0	4.0	SE	23	SSE	26	14	6	11	1	
Red Bluff	341	1009.5	1022.5	65	42	53.4	6.6	81	2	35	22	0	0	37	60	1.10	-3.13	.62	6	0	0	0	7.6	NNW	32	SE	26	6	9	16	1	
Sacramento	17	1020.7	1021.8	61	40	50.3	4.5	70	3	34	31+	0	0	41	73	0	-.76	-2.25	4.1	5	0	0	4.7	NNW	25	SE	26	1	9	11	5	
Sandberg (R)	4517	867.3	1020.0	58	46	51.8	9.4	71	4	34	29	0	0	---	---	---	-.02	-2.83	.92	1	0	0	13.1	---	48	ENE	2	21	4	9	3	
San Diego	19	1015.2	1018.7	73	51	61.9	5.0	85	3	44	18	0	0	43	59	0	-.06	-2.51	.06	1	0	0	4.5	NE	21	NE	29	19	10	2	3	
San Francisco (U)	52	-----	-----	64	51	57.5	5.6	76	12	47	22+	0	0	---	---	---	-1.48	-2.59	.61	5	0	0	4.4	---	21	S	26	---	---	---	---	
San Francisco	8	1021.0	1021.7	65	46	55.2	5.9	75	12+	42	29+	0	0	47	75	1.77	-1.82	.96	5	0	0	0	3.1	NNW	21	S	26	13	6	12	5	
Santa Maria	238	1011.5	1020.4	72	41	56.5	4.1	90	3	32	1	1	1	40	63	0	-.16	-2.45	.16	1	0	0	4.2	NNW	18	W	9	14	8	9	4	
COLORADO																																
Alamosa	7536	773.1	1024.8	46	7	26.3	6.9	61	8	14	31	0	31	---	---	---	-.02	-1.15	.02	1	0	4	1	---	---	---	---	---	---	---	---	---
Colorado Springs	6173	812.1	1022.6	49	21	35.0	3.5	66	3	9	13	0	31	17	54	0	-.20	-1.11	.11	5	0	1	1	9.6	N	31	NNW	31	10	9	12	
Denver	5292	839.8	1022.0	48	24	35.8	4.1	65	3	9	14	0	31	18	56	0	-.64	-.13	.25	6	0	7	3	10.8	SSW	37	W	19	10	7	14	
Grand Junction	4849	864.9	1025.4	47	24	35.6	7.1	59	9	13	30	0	30	20	54	1.1	-.57	1.10	2	0	0	0	6.2	ESE	34	NW	12	1	5	15		
Pueblo	4639	859.5	1022.4	50	21	35.5	4.4	68	3	13	31	0	31	20	61	0	-.02	-.41	.01	2	0	2	1	6.5	W	30	N	28	10	11	10	
CONNECTICUT																																
Bridgeport	7	1020.4	-----	35	20	27.4	-4.9	52	30+	8	22	0	28	---	---	---	1.63	-1.45	1.10	9	0	3.9	2	---	---	---	---	---	---	---	---	---
Hartford	169	1014.3	1020.6	31	13	22.0	-7.6	50	5	-6	11	0	30	15	75	1.42	-1.87	.52	6	0	8.9	4	8.9	N	36	W	5	10	10	11	5	
New Haven	6	1019.9	-----	35	19	26.7	-5.2	53	5	4	11	0	30	---	---	---	1.97	-1.97	1.23	11	0	4.8	3	9.2	---	26	W	22	12	8	11	
DELAWARE																																
Wilmington	78	1018.4	1021.6	37	20	28.6	-6.5	57	5	10	26+	0	28	17	64	1.25	-1.74	.66	6	0	6	1	9.0	NNW	---	---	---	---	---	---	---	---
DIST. OF COLUMBIA																																
Washington (U)	72	-----	-----	40	26	33.0	-5.2	60	23	14	16	0	23	---	---	---	-1.42	-1.33	.88	7	0	1.0	1	7.6	---	34	NW					

DECEMBER 1958

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CLIMATOLOGICAL DATA

DECEMBER 1954

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind		No. of days												
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	Max 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet	Average hourly speed	Prevailing direction	Speed	Direction	Fastest mile	to sunset							
Ft.	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	In	In	In	0.1 inch or more	With thunderstorms	Total	Max depth on ground	M	M	Direction	Speed	Direction	Clear	Partly cloudy	Cloudy	Sky cover tenths	Possible sunshine		
NEVADA (Cont'd.)																																		
Las Vegas	2162	955.0	1022.0	63	35	48.8	2.0	74	12	27	30	0	9	23	39	0.00	0.58	0.00	0	0	0	0	4.0	W	12	NW	23	20	6	5	3	90	90	
Reno	4397	867.9	1024.4	54	21	37.7	4.5	69	4	13	14	0	31	24	65	24	70	17	4	0	1	7	2.8	SW	12	SSE	26	8	10	13	6	1	7	5
Winnemucca	4299	874.4	1025.7	53	19	36.0	6.0	64	11	5	15	0	29	24	64	26	54	17	6	0	2.5	1	5.5	S	33	SW	27	6	3	22	7	5	5	
NEW HAMPSHIRE																																		
Concord	339	1008.3	1019.7	30	6	17.8	-6.2	44	30	12	11	0	31	9	68	1.40	-1.41	1.58	6	0	11.1	7	6.7	NNW	23	NW	25	9	12	10	3	3	34	
Mt. Washington	6262	794.7	-----	9	-7	1.0	-7.9	32	29	-22	21	0	31	9	68	4.35	1.30	2.08	23	0	39.1	13	10	7	W	119	W	6	4	8	19	7	5	34
NEW JERSEY																																		
Atlantic City	58	1018.0	1021.4	38	19	28.3	-8.5	37	5	2	14	0	28	19	68	2.61	-44	1.36	8	1	5.1	4	11.5	WNW	43	N	29	13	7	11	3	3	74	
Atlantic City (U)	10	-----	-----	36	23	29.6	-8.6	55	5	14	24	0	26	17	62	2.62	-69	1.50	8	0	5.0	4	12.2	W	43	N	29	12	9	10	3	3	74	
Newark	11	1020.1	1021.4	37	22	29.2	-4.8	55	5	12	25	0	27	17	62	1.45	1.65	1.65	8	0	5.3	4	10.0	NNE	49	N	6	11	9	10	3	3	74	
Trenton (U)	56	1013.8	1020.9	36	22	29.1	-5.9	57	5	11	11	0	28	17	62	1.16	-1.62	1.16	7	0	5.1	1	9.6	W	37	NW	3	11	9	11	5	1	62	
NEW MEXICO																																		
Albuquerque	5310	852.0	1020.9	55	28	41.5	5.5	72	4	3	31	0	22	18	43	1.35	76	1.35	2	0	14.2	11	6.7	N	38	NW	12	21	6	4	2	9	87	
Clayton	4969	847.3	1020.3	52	21	36.4	1.3	72	4	9	13	0	31	14	74	1.03	1.57	1.03	13	0	8.1	8	11.5	W	42	NW	6	11	17	17	7	5	31	
Raton	6379	806.6	1020.0	52	17	34.4	5.0	68	5	8	13	0	31	14	74	1.03	1.57	1.03	13	0	8.1	8	11.5	W	42	NW	6	11	17	17	7	5	31	
Roswell	3612	897.1	1021.0	58	23	40.5	-3.3	84	4	11	31	0	30	25	59	.25	-28	.25	1	0	2.3	3	9.9	---	43	NW	26	18	6	7	3	8	---	
NEW YORK																																		
Albany	277	1017.0	1020.8	28	11	19.2	-7.2	39	28	-6	22	0	31	12	73	64	1.53	25	8	0	6.4	4	7.1	S	38	W	5	6	12	13	6	4	51	
Binghamton	1590	958.2	1019.9	27	12	19.5	-5.9	42	29	-2	21	0	31	14	74	1.03	1.57	1.03	13	0	8.1	8	11.5	W	42	NW	6	11	17	17	7	5	31	
Buffalo	693	991.3	1020.9	29	15	22.3	-6.7	49	29	1	21	0	30	13	73	1.66	-1.26	1.66	19	0	19.0	8	12.4	W	49	SW	23	3	10	18	7	4	19	
New York (U)	10	1020.0	-----	37	24	30.1	-5.6	54	5	13	22	0	25	17	62	1.82	-1.25	1.82	8	0	4.5	3	14.4	NW	43	NW	6	15	7	9	1	8	67	
New York	19	1019.2	1021.2	36	24	30.0	-5.7	55	5	13	25	0	28	17	62	1.56	-1.44	1.56	10	0	3.0	3	15.2	WNW	41	NW	25	13	9	9	5	1	---	
Rochester	543	1000.5	1020.7	29	14	21.4	-6.8	45	29	3	22	0	30	15	75	62	-1.78	24	13	0	22.4	6	12.6	WSW	36	SW	23	5	8	18	7	2	52	
Schenectady	217	-----	-----	29	13	21.3	-4.6	41	23	-3	21	0	30	15	75	62	-1.78	24	13	0	22.4	6	12.6	WSW	36	SW	23	5	8	18	7	2	52	
Syracuse	424	997.9	1021.2	27	11	19.4	-9.7	43	4	-8	20	0	31	14	79	1.73	-1.01	1.73	18	0	22.5	12	9.5	WSW	35	NW	16	6	8	17	7	1	40	
NORTH CAROLINA																																		
Asheville (U)	2203	939.6	-----	47	27	37.0	-3.2	60	30	-14	16	0	23	14	79	3.93	97	3.93	14	6	2.3	2	8.0	---	29	NW	24	10	8	13	5	8	60	
Cape Hatteras (R)	9	1019.9	1020.6	51	39	44.7	-4.8	67	5	28	17	0	4	37	75	1.93	1.34	1.93	7	1	0	0	12.7	NNE	---	---	---	11	5	15	6	0	54	
Charlotte	725	992.9	1021.8	51	28	39.6	-3.4	67	30	-12	16	0	22	28	65	3.17	-6.2	2.59	8	0	3.0	3	10.3	NE	35	NW	20	10	8	13	5	7	64	
Greensboro	891	989.2	1022.5	47	24	35.4	-4.7	64	30	1	12	0	23	23	66	4.37	1.26	3.60	8	0	5.9	3	8.3	SW	34	NE	28	10	7	14	5	9	70	
Raleigh	433	1007.8	1022.2	48	26	39.9	-5.5	67	5	7	16	0	22	25	66	4.24	.95	3.18	7	0	10.6	9	7.2	N	24	WNW	5	11	8	12	5	6	69	
Wilmington	30	1020.4	-----	53	33	43.1	-5.5	70	23	18	16	0	17	14	79	5.31	1.85	3.23	7	0	3.1	3	10.1	---	40	SE	28	9	8	14	5	8	50	
Winston-Salem	967	985.6	1022.1	47	27	37.0	-3.6	63	30	7	12	0	22	24	63	4.23	1.00	3.48	6	0	4.5	3	9.5	NE	*43	NE	28	12	6	13	5	5	---	
NORTH DAKOTA																																		
Bismarck	1650	959.0	1023.5	22	3	12.6	-2.9	46	3	-17	14	0	31	7	77	.34	-0.66	.34	14	7	4.1	5	9.7	WNW	56	NW	3	9	6	16	6	5	46	
Devils Lake (U)	1471	964.8	-----	17	-1	8.1	-3.1	42	3	-21	14	0	31	7	79	.40	-0.66	.40	15	11	6	4	13	8.9	NW	50	NW	3	7	7	17	7	0	50
Fargo	895	986.1	1023.1	19	2	10.5	-2.4	42	3	-14	14	0	31	7	72	.04	-0.56	.03	3	0	9	4	15.5	S	50	N	16	8	5	18	7	0	45	
Williston (U)	1877	950.9	1022.1	25	7	16.2	.5	47	3	-15	14	0	31	9	72	.51	-0.3	.41	4	0	5.1	4	6.8	S	36	NW	16	10	7	14	5	9	67	
OHIO																																		
Akron	1210	982.6	1022.6	29	12	20.6	-9.5	53	29	-11	10	0	30	16	79	79	-1.79	31	11	0	10.1	6	11.1	S	---	---	---	5	9	17	7	0	---	
Cincinnati Obs.	761	-----	-----	36	19	27.4	-7.6	55	29	0	10	0	29	17	68	78	-2.06	60	5	0	3.1	6	5.4	---	---	---	---	---	---	---	---	---	---	
Cincinnati	869	989.9	1023.5	36	18	27.0	-6.6	58	29	-2	15	0	29	17	68	68	-2.15	56	6	0	2.8	5	8.4	SW	27	WNW	14	9	6	16	6	5	---	
Cleveland	787	992.7	1022.0	31	15	23.3	-7.6	57	29	-5	10	0	29	17	76	71	-1.58	15	15	0	9.7	6	13.7	S	40	S	16	2	7	22	7	9	38	
Columbus (U)	724	-----	-----	32	17	24.4	-8.9	58	29	5	10	0	29	17	68	68	-1.78	39	6	0	6.0	5	---	---	---	---	---	---	---	---	---	---	---	
Columbus	815	992.4	1024.1	32	15	23.4	-8.3	61	29	-8	11	0	29	17	76	69	-1.80	40	7	0	7.5	4	6.4	W	29	SW	19	6	8	17	6	7	44	
Dayton	1002	985.0	1023.4	39	14	22.7	-9.0	54	29	-9	10	0	30	15	73	1.54	-1.93	21	7	5.9	4	11.1	SW	34	W	14	5	5	11	15	6	6	51	
Sandusky (U)	603	998.6	-----	29	15	22.3	-9.2	45	27	-4	10	0	30	16	79	66	-1.50	50	4	0	6.6	6	8.7	---	---	---	---	---	---	---	---	---	---	
Toledo	676	995.7	1022.4	30	13	21.1	-7.8	52	29	-6	10	0	31	16	78	54	-1.75	23	11	0	6.2	3	9.7	SW	---	---	---	---	---	---	---	---	---	
Youngstown	1178	977.1	1021.9	29	12	20.8	9.2	51	29	-5	11	0	30	16	79	88	-2.06	24	15	0	11.4	5	12.2	WSW	*33	SW	16	4	8	19	7	4	---	
OKLAHOMA																																		
Oklaoma City	1280	972.9	1023.6	47	26	36.5	-3.7	66	22	6	14	0	22	28	75	1.11	-1.37	.57	6	0	7.0	6	13.7	NNE	34	SE	28	12	5	14	5	4	54	
Tulsa	672	998.3	1023.8	48	27	37.3	-3.5	67	22	4	14	0	21	28	67	.82	-1.87	.43	6	0	9.9	6	8.0	NNE	30	SE	9	13	5	13	5	2	60	
OREGON																																		
Astoria	8	1019.3	1019.9	53	42	47.6	4.9	62	1	35	5	0	0	45	89	12.17	-1.04	2.48	27	1	0	0	8.9	ESE	*40	SSW	1	0	4	27	9	3	---	
Burns (U)	4140	878.1	1024.4	45	25	35.0	7.3	61	3	12	5	0	30	28	79	.76	-.68	.28	11	0	4.9	3	---	---	---	---	---	---	---	---	---	---	---	---
Eugene	361	1008.5	1022.4	53	40	46.1	5.5	67	2	28	5	0	4	---	---	4.01	-1.99	1.26</																

CLIMATOLOGICAL DATA

DECEMBER 1956

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind			No. of days		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal			Date	No. of days	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Departure from normal		Greatest in 24 hours	No. of days	Snow, Sleet		Average hourly speed	Prevailing direction	Fastest mile	Speed	Direction	Date	Clear	Partly cloudy		Cloudy	to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
							°F	°F	°F							°F	°F			°F	°F											°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F

HEATING DEGREE DAYS

(Base 65°F.)

DECEMBER 1958

State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month	State and station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				KANSAS				NEW YORK				TEXAS (Cont'd.)			
Birmingham	711	1137	1130	Casa Grande (U)	1067	1938	2048	Albany	1415	2817	2583	Midland	664	1173	
Mobile	466	673	623	De Soto City	1003	1916	1951	Binghamton	1405	2918	2851	Port Arthur	422	638	587
Montgomery	571	843	864	Goodland	1023	2272	2461	Buffalo	1318	2545	2470	San Angelo	616	1058	854
ARIZONA				Lawrence	1078	1929	2027	New York (U)	1073	1900	1771	San Antonio	451	697	600
Flagstaff	879	2554	2967	Wichita	984	1716	1763	New York	1076	1876	1732	Victoria	385	558	408
Phoenix (U)	172		555	KENTUCKY				Rochester	1344	2647	2516	Waco	577	856	754
Phoenix	271	399	645	Lexington	1082	1932	1884	Schenectady	1349	2634	2616	Wichita Falls	724	1156	1181
Prescott	620	1452	1720	Louisville	1040	1784	1733	Syracuse	1408	2699	2369	UTAH			
Tucson	284	526	649	LOUISIANA				Asheville (U)	860	1642	1633	Midway	936	2396	2551
Winslow	781	1659	1903	Baton Rouge	448	647	615	Cape Hatteras (R)	623	880	788	Salt Lake City	887	2081	2279
Yuma	106	194	364	Lake Charles	437	614	593	Charlotte	783	1294	1274	VERMONT			
ARKANSAS				New Orleans (U)	355	479	429	Greensboro	912	1620	1513	Burlington	1603	3188	2925
Ft. Smith	826	1342	1273	New Orleans	378	525	484	Raleigh	864	1459	1304	VIRGINIA			
Little Rock	757	1194	1179	Shreveport	621	967	848	Wilmington	674	1023	869	Lynchburg	964	1706	1625
Texarkana	678	1055	913	MAINE				Winston-Salem	861	1487	1458	Norfolk	855	1276	1257
CALIFORNIA				Caribou	1847	4157	3918	NORTH DAKOTA				Richmond	973	1618	1532
Bakersfield	385	656	819	Greenville (U)	1704	3873		Bismarck	1621	3495	3524	Roanoke	948	1670	1632
Bishop	639	1349	1675	Portland	1449	3476	2847	Devils Lake (U)	1761	3915	3903	WASHINGTON			
Blue Canyon	499	1371	2006	MARYLAND				Fargo	1694	3504	3604	Olympia	650	1914	2254
Burbank	179	327	580	Baltimore (U)	988	1701	1537	Grand Forks	1824	3860		Seattle (U)	541	1498	1776
Eureka (U)	385	1698	2033	Baltimore	1081	1922	1818	Pembina	1958	4002	3566	Seattle-Tacoma	617	1794	2163
Fresno	470	806	1011	Frederick	1138	2130	1841	Williston (U)	1508	3447		Spokane	1005	2566	2750
Los Angeles (U)	132	214	451	MASSACHUSETTS				Akron	1373	2610	2298	Stampede Pass (R)	1087	3517	3831
Los Angeles	118	182	697	Blue Hill Obs. (R)	1316	2704		Cincinnati (U)	1064	1774	1711	Tatoosh Island (R)	564	2233	2480
Mt. Shasta (R)	670	1791	2326	Boston	1190	2213	2015	Cincinnati	1171	2066	1999	Walla Walla (U)	813	1849	1966
Oakland	346	745	1238	Escondido (U)	1080	2160	2078	Cleveland	1288	2319	2181	Yakima	964	2444	2476
Red Bluff	352	678	942	Pittsfield	1425	3087	2933	Columbus	1284	2313	2139	WEST VIRGINIA			
Sacramento (U)	377	656	980	MICHIGAN				Dayton	1302	2342	2128	Charleston	1032	1887	1720
Sacramento	447	784	1072	Alpena (U)	1447	3027	2962	Sandusky (U)	1323	2312	2116	Elkins	1209	2490	2295
Sandberg (R)	401	1092	1403	Detroit	1313	2410	2333	Toledo	1354	2542	2376	Huntington (U)	1024	1805	1597
San Diego	108	202	496	Detroit (Willow Run)	1346	2483	2383	Youngstown	1362	2637	2274	Parkersburg (U)	1127	2030	1824
San Francisco (U)	224	879	1247	East Lansing (U)	1359	2533		OKLAHOMA				WISCONSIN			
San Francisco	295	629	1360	Grand Rapids	1519	3189	3213	Oklahoma City	876	1461	1417	Green Bay	1543	3109	3125
San Jose	283	551	861	Marquette (U)	1467	3181	3167	Tulsa	853	1362	1382	La Crosse	1521	2839	2931
Santa Maria	268	713	1113	Muskegon	1338	2624	2593	OREGON				Madison	1499	2859	2846
COLORADO				S. Ste. Marie	1661	3674	3575	Astoria	531	1753	1961	Milwaukee	1429	2707	2663
Alamosa	1193	3204	3621	MINNESOTA				Burns (U)	921	2403	2829	WYOMING			
Colorado Springs	919	2204	2391	Duluth (U)	1808	3995	3690	Eugene	575	1573	1939	Casper	1108	1728	3021
Denver	898	2088	2364	Duluth	1822	3996	3842	Meacham	912	2662	3105	Cheyenne	1052	2660	2912
Grand Junction	904	1970	2293	Internat. Falls	2017	4390	4223	Medford	671	1572	1849	Lander	1192	2922	3339
Pueblo	908	1989	2279	Minneapolis	1519	2917	3015	Pendleton	814	1927	2095	Sheridan	1212	2913	3113
CONNECTICUT				Rochester	1575	3135	3144	Portland (U)	565	1341	1627	ALASKA			
Bridgeport	1163	2203	2059	St. Cloud	1644	3408	3483	Portland	657	1644	1817	Anchorage	1531	5084	4807
Hartford	1326	2628	2280	MISSISSIPPI				Roseburg	546	1406		Annette	809	2852	3022
New Haven	1179	2285	2163	Jackson	632	991	882	Salem	593	1540	1815	Barrow	2289	7943	8392
DELAWARE				Meridian	638	994	956	Sexton Summit (R)	671	1954	2373	Barter Island	2204	7628	
Wilmington	1123	2049	1841	Vicksburg (U)	609	913	775	PENNSYLVANIA	1256	2422	2205	Bethel	1755	5603	5559
DIST. OF COLUMBIA				MISSOURI				Allentown	1077	2171	1971	Cold Bay	1041	4187	
Washington (U)	983	1665	1604	Columbia	1065	1857	1973	Harrisburg	1177	2171	1971	Cordova	1119	4325	4190
Washington	987	1659	1630	Kansas City	1017	1675	1875	Philadelphia (U)	1046	1851	1624	Fairbanks	2238	6722	6374
FLORIDA				St. Joseph	1123	1992	2048	Philadelphia	1096	2003	1791	Juneau	1076	3807	3966
Apalachicola (U)	354	451	475	St. Louis (U)	1057	1692	1703	Pittsburgh (U)	1179	2097	1890	King Salmon	1374	4905	
Daytona Beach	182	209	288	St. Louis	1072	1811	1805	Pittsburgh	1295	2454	2268	Kotzebue	2018	6592	6630
Fort Myers	93	93	126	Springfield	994	1776	1841	Reading (U)	1132	2070	1871	McGrath	2347	6821	6378
Jacksonville	326	415	473	MONTANA				Scranton	1316	2662	2272	Nome	1818	6099	5967
Key West	4	4	18	Billings	1116	2584	2767	Williamsport	1274	2499	2250	St. Paul	1080	4536	4556
Miami	26	26	60	Glasgow	1540	3544	3458	RHODE ISLAND				Yakutat	1050	3966	4071
Miami Beach	11	11	37	Great Falls	1081	2779	2959	Block Island	1070	2069	1963				
Orlando	150	165	222	Havre (U)	1312	3138	3298	Providence	1225	2351	2221				
Pensacola (U)	402	543	529	Helena	1253	3208	3349	SOUTH CAROLINA							
Tallahassee	404	555	606	Kalispell	1171	2263	3334	Charleston (U)	502	682	658				
Tampa	135	140	223	Miles City	1355	2933	3068	Charleston	568	864	778				
West Palm Beach	35	35	69	Missoula	1098	3042	3270	Florence	702	1102	978				
GEORGIA				NEBRASKA				Greenville	678	1035	1015				
Athens	717	1157	1109	Grand Island	1183	2357	2459	Spartanburg	734	1186	1200				
Atlanta	681	1066	1125	Lincoln (U)	1106	2044	2250		742	1234	1211				
Augusta	667	1041	835	Norfolk	1277	2537	2744	SOUTH DAKOTA							
Columbus	622	929	951	North Platte	1183	2558	2581	Huron	1500	2970	3029				
Macon	587	841	824	Omaha	1184	2195	2373	Pierre	1402	2804					
Rome	797	1371	1256	Scottsbluff	1228	2579	2638	Rapid City	1168	2570	2858				
Savannah	517	745	675	Valentine	1273	2724	2730	Sioux Falls	1465	2891	3062				
IDAHO				NEVADA				TENNESSEE							
Boise	870	2052	2340	Elko	1004	2638	2905	Bristol	948	1722	1688				
Lewiston	798	1995	2247	Ely	958	2659	2930	Chattanooga	819	1404	1380				
Pocatello	937	2411	2727	Las Vegas	497	877	969	Knoxville	847	1433	1454				
ILLINOIS				Reno	839	2173	2426	Memphis	795	1288	1248				
Cairo (U)	941	1543	1465	Tonopah	806	1854	2241	Nashville	886	1509	1372				
Chicago	1315	2300	2352	Winnemucca	891	2357	2612	TEXAS							
Chicago University	1291	2268		NEW HAMPSHIRE				Abilene	690	1148	1048				
Moline	1319	2411	2434	Concord	1459	3041	2907	Amarillo	852	1668	1730				
Peoria	1296	2306	2323	Mt. Washington Obs.	1985	6256		Austin	505	763	646				
Springfield	1187	2131	2193	NEW JERSEY				Brownsville	212	297	218				
INDIANA				Atlantic City (U)	1091	1872	1597	Corpus Christi	292	423	365				
Evansville	1103	1930	1715	Newark	1103	1983	1912	Dallas	937	634	937				
Ft. Wayne	1366	2518	2382	Trenton (U)	1105	2028	1852	Del Rio (U)	439	691					
Indianapolis	1257	2300	2141	NEW MEXICO				El Paso	549	1028	1086				
South Bend	1370	2516	2442	Albuquerque	722	1568	1757	Ft. Worth	659	988	890				
IOWA				Clayton	880	1919	1991	Galveston (U)	334	471	402				
Burlington	1289	2339	2334	Roswell	753	1479	1415	Galveston	347	486	418				
Des Moines	1294	2401	2472					Houston (U)	363	548	465				
Dubuque	1490	2827	2801					Houston	375	568	509				
Keokuk (U)	1208	2149						Laredo	294	444	306				
Sioux City	1333	2527	2733					Lubbock	779	1446	1444				

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

DECEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
WASHINGTON Entire State	1-2						4		Wind	Wind speeds ranging from 40 to 60 m.p.h., over west disrupted power and communication services in many localities. Ferry service delayed and some damage reported at waterfront installations. Less damage in east, with scattered reports of wind damage.
CALIFORNIA Southern portion	2-3					8	5		Wind and fire	Strong Santa Ana winds with low humidity in mountain passes of south. Wind gusts reaching 60 m.p.h., reported at Fontana. Brush fire starting in Malibu area north of Los Angeles and fanned by winds burned over 21,000 acres and destroyed 25 buildings, including a \$50,000 home. 8 fire fighters hospitalized for burns.
WYOMING Eastern half	3	All day							Wind	General windstorm with usual damage to phone and powerlines, TV antennas, etc. A few range fires caused some damage.
	3									Minor storm also reported in Denver and in Jefferson County, Colo.
MASSACHUSETTS, NEW HAMPSHIRE, and VERMONT	3-4	During night				4	3	1	Snow and glaze	Hazardous streets caused automobile accidents and at least 4 injuries. Most reports of loss were from Massachusetts.
NEW ENGLAND (Central and northern portions)	4-5				11	1	4	1	Sleet, glaze, and snow	Slippery roads in many areas slowed traffic and caused several fatal accidents and at least 1 injury. Maine reported 6 deaths, Massachusetts 4 deaths and 1 injury, and Vermont 1 death.
KANSAS Rawlins, Thomas, and Scott Counties	4-5-6								Sleet, freezing mist, and rain	Thin coating of ice on streets and highways beginning on afternoon of 4th and lasting through 6th made driving hazardous over this area.
SOUTH DAKOTA Statewide	4-8						3		Ice	Patches of old snow and ice resulted in numerous minor mishaps.
COLORADO Northeastern portion	5-6	A.m. 5th- a.m. 6th			2	Many			Freezing rain	Cold surface temperatures and warm temperatures aloft, resulted in light rain and drizzle forming glaze on streets and highways which caused many accidents. 2 men killed, due to slippery roads and streets; 1, a pedestrian, struck in Denver and the other a Longmont man killed in traffic accident. At least 34 injured in Denver area in accidents or falls on slick streets and sidewalks.
NEW YORK Oswego, Chautauqua, and Cattaraugus Counties	5 and 11							1	Snow and wind	Persistent snow squalls off Lakes Erie and Ontario brought up to 6 feet or a little more of snow to snow belt areas to lee of lakes. Considerable industrial shutdown and many school closings. Numerous roofs caved in in Oswego. Additional snow squall activity later in month was less severe, but brought total snow for month to over 100 inches in several communities.
	5									Minor storm reported at Southborough, Mass.
WASHINGTON Northwestern portion	6-8						5		Freezing rain and snow	Highways in some areas near Canadian Border blocked by drifting snow. Greatest damage resulted from freezing rain which left many communities without power or telephone service for several days. Schools closed for several days and highway travel delayed by freezing rain. Numerous minor highway accidents.
COLORADO Boulder, Boulder County	7	3:30 p.m.					4		Wind	Estimated 75 m.p.h., gusty wind damaged buildings, powerlines, and cars in and around Boulder. Roof blown from building and smashed into side of another, many windows broken, and trailer house overturned.
WASHINGTON Southeastern portion	10-11						5		Freezing rain	Freezing rain caused rather extensive damage to power- and communication lines over rather wide area in southeast.
SOUTH CAROLINA Central and northern portions	10-12								Snow	Snow and sleet began on night of 10th, and spread northward. By 7 a.m., on 11th, 4 to 6 inches accumulated in central and most schools closed in that area. At 1 p.m., snow depths reached 6 to 8 inches, with occasional measurement of 1 foot in central. Heaviest fall in 44 years. Low temperatures, with occasional near-record minima, kept all but the most used roads icy and dangerous for travel. In this section of the country, few drivers equipped with chains, and many areas snow or ice bound on 11th and 12th.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

DECEMBER 1958,

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
OREGON Umatilla County (northern portion)	10-13		30	*10- 15			3	3	Ice	Heavy ice accretions formed on power- and tele- phone lines across northern Umatilla County, completely severing power and telephone services for several sizable communities for periods of from several hours to as much as 3 days in some cases.
FLORIDA Sarasota, Sarasota County	11	5:45 a.m.	Short	Narrow	0	1	4		Tornado	2 areas near Sarasota affected and it is not definitely known if there was 1 or 2 tornadoes, as tornado lifted and lowered along path. Dam- ages confined to buildings along narrow path. Tornado moved northeastward.
NORTH CAROLINA Coastal Plain and eastern Piedmont sections	11	All day			9	Many	5		Snow, ice, and cold	Snow ranging up to 18 inches in depth--in many places heaviest December snowfall of record-- fell in eastern two-thirds. A number of ware- house roofs caved in from weight of the snow and many traffic accidents of varying severity. Hundreds of minor injuries and a few more serious received by persons slipping on snow and ice and by those involved in traffic accidents. At least 9 deaths attributed in part to heavy snow and severe cold which fol- lowed, ranging from children killed while sledding to exposure and traffic accident deaths.
VIRGINIA Southern, central, and eastern portions	11	Most of day							Snow	Up to 14 inches of snow measured in southeast. Traffic snarled, many schools closed, and business disrupted.
COLORADO Loveland Pass, Larimer County	11	Afternoon			1				Snow and wind	During heavy snowstorm with high wind, snow- plow operator killed, when his truck went into a skid and plunged over embankment.
NORTH CAROLINA	11-16								Cold and snow	Coldest weather of record for so early in season occurred over a large part of North Carolina. Scattered reports of zero or below west of line running from Monroe on central South Carolina line to Gatesville near Virginia line in north- east. Additional snow fell on night of 13th, affecting mostly western half of State. Deaths, injuries, and damage included with storm of 11th.
KANSAS Central and eastern counties	12	Afternoon -evening			1				Snow, sleet, and freezing mist	Light snow that melted as it fell and then froze caused icy conditions on roads and highways. Also in local areas of southeast, freezing mist and sleet added to traffic problems. 1 man killed in truck-car collision near St. Marys. Numerous minor accidents reported.
UTAH Southern and western portions	12								Wind and dust	Strong winds blew limbs off some trees and caus- ed other minor property damage. Winds to 60 m.p.h., or over in west produced considerable blowing dust, locally reducing visibility to zero, thus hampering highway traffic.
	12									Minor storm also reported in Nantucket and Cape Cod areas, Mass.
OKLAHOMA	12-13					5		1	Snow	Heavy snow over State, causing roads and streets to become icy and slippery. Scores of "fender- bender" type accidents resulted in numerous bruise type injuries and 2 more serious in- juries. 3 persons injured from falls.
CALIFORNIA Southern portion	13-16						5		Wind and fire	Strong Santa Ana winds with gusts exceeding 40 m.p.h., fanned huge brush fire in area north of San Juan Capistrano. Fire burned over 60,000 acres of brush and grass lands, de- stroying 18 summer homes.
SOUTH DAKOTA Northeastern portion	13-16					2	3		Ice	Icy highways resulted in 8 accidents.
VIRGINIA Southern two- thirds	14	Most of day							Snow	Up to 6 inches of new snow in south on top of remains of snow of 11th. Traffic delayed, many schools closed, and business disrupted. The snows a factor in 30 traffic deaths over weekend.
SOUTH CAROLINA Northwestern portion	14								Snow	Little obstruction caused by this storm.
NEW ENGLAND (Central and northern portions	15				1		3	1	Snow	Snow from coastal storm fell over most of sec- tion, with greatest amounts, up to 10 to 12 inches in parts of southern Maine. Traffic delayed, and several highway and other

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

DECEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
NEW ENGLAND (Cont'd.)										accidents resulted. Several injuries in Maine and Massachusetts. Schools closed in several communities. 1 death from overexertion in Maine.
TEXAS Starr, Hidalgo, Willacy, Cameron, Webb, Maverick, La- Salle, Jim Wells, and Brooks Counties	15-17						1	6	Freeze	Cold Canadian air swept southwestward deep into lower Rio Grande Valley on 15th and 16th. On night of 16th and early morning of 17th, heavy frost occurred over most of lower valley, remaining for a minimum of 9-1/2 hours. Temperatures dropped to low 20's. Peas, beans, squash, cucumbers, peppers, tomatoes, corn, sorghums, sweet sorghums, ornamentals, citrus foliage, nursery stock and pasture grass damaged.
MINNESOTA	16	P.m.							Dust, snow, and wind	Black snow tied up afternoon traffic with zero visibility from Detroit Lakes to Moorhead. Wind-driven snow, 2 to 6 inches of new snow-fall, drifted, shut some county roads. Snow continued eastward during night, with heaviest snow falling along North Shore. Strong winds with speeds as high as 50 m.p.h., over south. Accompanying precipitation little or none.
	25									Minor storm reported in Puget Sound area, Wash.
FLORIDA Ft. Lauderdale, Broward County	26-27	Afternoon 26th- early a.m. 27th							Rain	Torrential rain in small area in and around Ft. Lauderdale dumped up to 13 inches of rain in 24-hours on city, causing stores, homes, and other buildings to be temporarily inundated. Broward County Airport closed temporarily because of flood. Storm highly localized and flooding conditions affected only small area in and around city. Some crop damage sustained in area, but rains in agricultural areas generally much lighter than in city.
CALIFORNIA Northern portions	26-27	Night- morning							Thunderstorms	Widely scattered thunderstorms, some with hail, over northern half following storm front. Report of tornado in area 5 miles south of Woodland on 27th not confirmed.
UTAH Northwestern portion	27-29				1	9			Snow and ice	Several automobile accidents due to icy roads with 9 persons injured. 1 man died of heart attack while shoveling snow.
NORTH CAROLINA	28				1	Sev- eral	4		Rain	Heavy rain fell on all parts of North Carolina, with totals ranging mostly between 2 and 5 inches. Over many large areas this was heaviest 24-hour December rainfall of record. 1 death and several injuries resulted from traffic accidents due in part to rain-slickened roads. Heavy washouts occurred to many recent highway and building construction fills, while established roads suffered considerable damage from washing rains following recent freezes.
COLORADO Eastern portion	28-29				1	Many			Snow	Snowstorm moving southward deposited varying amounts of snow along eastern slope of Rockies. Traffic impeded and roads blocked over wide area. Woman killed in traffic accident in Denver caused by icy streets.
NEW MEXICO Albuquerque and vicinity, Bernalillo County	28-29								Snow	Record-breaking snowfall of 14.2 inches in 24-hours. Broke limbs off trees which in turn broke powerlines with almost half of city without electricity for period up to 12 hours. Traffic almost at standstill.
NEW MEXICO Southern Torrance County north- eastward	28-29								Snow	Snowfall from 10 to 20 inches, with considerable drifting. Highways blocked. No serious loss of livestock.
WASHINGTON Entire State	29						2		Wind	Wind speeds ranging from 50 to 60 m.p.h., reported over most of State. Power- and communication lines damaged and a few plate-glass windows broken in west.
CALIFORNIA Southern portion	29-30					1	4		Wind and dust	Northerly winds, with strong gusts and low humidity, blowing over desert areas and through mountain passes of south toppled loads from trucks, blew branches from trees, and pitted windshields of cars in series of blinding dust-storms. At Fontana, where wind gusts to 78 m.p.h., reported, woman injured when heavy sign fell on her car. Trees uprooted and signs blown down in Orange County, and merchandise damaged in patio store at Anaheim.

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

DECEMBER 1958

Place	Date	Time	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
KANSAS Southwestern counties	29-30								Snow	Heavy snows of 5 to 10 inches that drifted in extreme southwest. Traffic halted by drifted roads from Elkhart eastward through Liberal.
OKLAHOMA	29-31					2		1	Snow	Heavy snow fell over State, causing hazardous road conditions which resulted in scores of automobile accidents. Only 2 serious injuries reported.
IOWA Southeastern half	31	Evening			2	2	4	1	Snow	Highways snow-packed and hazardous. Numerous automobile accidents, 1 with 2 personal injuries. 2 persons died of heart attack while shoveling snow.

* Miles instead of yards.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

DECEMBER 1958

Flooding during December was very light and sparse and confined to the Carolinas, Virginia, and the Pacific Northwest.

ATLANTIC SLOPE DRAINAGE

Moderate to heavy rains on the 27th and 28th in the Carolinas and Virginia caused sharp rises in streams and considerable light flooding. Rainfall amounts of 2 to 5 inches were common in the Roanoke and Dan River Basins. In many cases, the 24-hour rainfall totals were the greatest of record for the month of December. In the Yadkin Basin, the rainfall averaged 5.25 inches. Storm totals in excess of 5 inches were reported at points on the upper Broad and Catawba Rivers in South Carolina. Runoff, however, was small considering the amount of rainfall and season of the year as the antecedent conditions were very dry. This was the first flooding in the upper Yadkin Basin since April 1957 and the first since April 1958 along the middle portion. No damage was reported from the flooded streams in Virginia and North Carolina and only minor damage in South Carolina.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The Mississippi River flow at both Minneapolis and St. Paul, Minn., was below normal. At Minneapolis the December mean stage of 4.9 feet was 1.2 feet below the longterm mean and the lowest since 1948 when a mean stage of 4.8 feet was recorded. At St. Paul the mean stage was 0.6 foot below the longterm mean. At La Crosse, Wis., the flow was near normal.

All rivers were frozen over at the end of the month. Ice thickness on the Mississippi River at Minneapolis was 15 inches; at Lake Pepin and at La Crosse, Wis., 11 inches and at Guttenberg, Iowa, from 5 to 8 inches. Navigation on the Mississippi River was closed at St. Paul on the 2d and at Guttenberg, Iowa, on the 6th.

A comparison of snow depths in the upper Mis-

issippi Basin on December 31 with that of other years is given for selected points in the following table:

Comparative Snow Depths (Inches)

Station	1958	1957	1956	1955	1954
(Minnesota)					
Bemidji	10	T	6	17	1
International Falls	15	2	6	14	4
Duluth	9	6	11	26	4
Fargo, N. Dak.	1	1	T	T	1
Alexandria	0	2	2	10	1
New Ulm	0	T	T	5	1
Minneapolis	0	T	0	11	2
Rochester	0	1	T	7	1
Park Falls, Wis.	6	7	11	23	11

Ohio Basin.--The heavy rains on the 27th and 28th caused flooding in the extreme upper portion of the New River in Virginia. The river bottoms were estimated to have flooded to a depth of 3 feet. There was no flooding below Boyers Ferry, Va. No damages were reported from the overflow.

PACIFIC SLOPE DRAINAGE

Columbia Basin.--The only flooding in the Columbia Basin during December was on the Santiam River at Jefferson, Oreg., and in the headwaters of the Umatilla River above Pendleton, Oreg. Flooding was minor and no damages were reported.

Miscellaneous Basins.--Minor flooding occurred on the Skagit, Snohomish, and Snoqualmie Rivers in Washington on the 3d and 12th. There was some light flooding on the Skagit on the 1st and 2d at Concrete, Wash. Snowmelt at the higher elevations contributed to the heavy runoff on the 3d and 12th. It was the warmest December on record averaging about 5° above normal.

FLOOD STAGE DATA

(All dates in December unless otherwise specified)

DECEMBER 1958

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
ATLANTIC SLOPE DRAINAGE				<i>Ft.</i>	
Dan: Danville, Va.	11	29	30	13.0	29
Roanoke: Altavista, Va.	18	29	30	25.15	29
Randolph, Va.	21	30	31	#25.65	31
Tar: Rocky Mount, N. C.	9	Jan. 2	Jan. 2	9.1	Jan. 2
Tarboro, N. C.	19	Jan. 2	Jan. 5	21.8	Jan. 4
Greenville, N. C.	13	Jan. 3	Jan. 7	#14.9	Jan. 5
Neuse: Neuse, N. C.	14	29	Jan. 2	18.2	Jan. 1
Smithfield N. C.	13	29	Jan. 3	18.2	31
Goldsboro, N. C.	14	Jan. 3	Jan. 9	18.7	Jan. 6
Kinston, N. C.	14	Jan. 6	Jan. 11	15.8	Jan. 9
Cape Fear: Elizabethtown, N. C.	20	30	Jan. 3	26.4	31
Yadkin: Wilkesboro, N. C.	14	28	29	15.7	29
Yadkin College, N. C.	18	29	30	20.1	30
Broad: Gaffney (nr), S. C.	10	29	29	11.1	29
Blair, S. C.	14	29	31	18.0	30

River and station	Flood stage	Above flood stages -dates		Crest*	
		From-	To-	Stage	Date
ATLANTIC SLOPE DRAINAGE (Cont'd.)				Ft.	
Catawba: Catawba, S. C.	8	29	29	11.9	29
PACIFIC SLOPE DRAINAGE Columbia Basin					
Santiam: Jefferson, Oreg.	13	11	12	14.1	12
Miscellaneous Basins					
Snoqualmie: Carnation, Wash.	51	3 12	3 12	E52.0 E52.6	3 12
Snohomish: Snohomish, Wash.	23	3 12	3 12	25.3 E24.0	3 12
Skagit: Concrete, Wash.	26	1 2	2 3	26.4 30.1	1 3
Mt. Vernon, Wash.	21	3	3	21.7	3

* Provisional
Highest stage observed
E Estimated

RAWINSONDE DATA

Average monthly values

DECEMBER 1958

ALBANY, N. Y. (1010 MB.)										ALBUQUERQUE, N. MEX. (842 MB.)										AMARILLO, TEX. (895 MB.)										ANCHORAGE, ALASKA (1000 MB.)										ANNETTE, ALASKA (1008 MB.)									
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind									
										Direction	Speed									Direction	Speed									Direction	Speed									Direction	Speed								
SURFACE	31	186	-9.5	78	272	1.5	31	1,619	0.6	55	2	2.9	30	1,095	-1.9	72	285	3.1	31	30	-9.2	77	30	2.5	31	37	3.7	77	121	8.9	31	37	3.7	77	121	8.9	31	37	3.7	77	121	8.9							
1,000----	31	161					31	1,213					30	1,204					31	29			30	2.5	31	37	3.7	77	144	9.7	31	37	3.7	77	144	9.7	31	37	3.7	77	144	9.7							
950----	31	159	-8.8	68	286	2.7	31	1,633					30	1,617					31	431	-3.9	68	29	5.8	31	510	-1.2	77	149	9.7	31	510	-1.2	77	149	9.7	31	510	-1.2	77	149	9.7							
900----	31	197	-9.6	67	295	14.5	31	1,075					30	1,055					31	859	-3.9	64	73	3.8	31	946	-1.6	80	157	7.3	31	946	-1.6	80	157	7.3	31	946	-1.6	80	157	7.3							
850----	31	1,418	-10.9	61	288	18.4	31	1,540					30	1,513	3.7	46	310	9.3	31	1,309	-6.2	62	111	5.4	31	1,399	-3.9	80	201	8.3	31	1,399	-3.9	80	201	8.3	31	1,399	-3.9	80	201	8.3							
800----	31	1,883	-12.3	57	284	21.3	31	2,032	3.7	39	319	6.8	30	2,006	3.8	37	305	9.7	31	1,781	-8.6	62	134	10.6	31	1,876	-6.2	74	216	9.9	31	1,876	-6.2	74	216	9.9	31	1,876	-6.2	74	216	9.9							
750----	31	2,377	-13.3	48	279	25.0	31	2,554	2.4	33	312	13.2	30	2,529	2.1	36	292	12.4	31	2,277	-11.3	59	146	13.6	31	2,374	-8.9	67	220	12.0	31	2,374	-8.9	67	220	12.0	31	2,374	-8.9	67	220	12.0							
700----	31	2,899	-15.1	45	278	31.0	31	3,111	-4.3	32	310	20.0	30	3,083	-4.1	33	291	16.7	31	2,806	-14.3	56	155	12.4	31	2,910	-11.9	61	225	8.9	31	2,910	-11.9	61	225	8.9	31	2,910	-11.9	61	225	8.9							
650----	31	3,438	-17.7	44	278	36.1	31	3,697	-4.7	31	306	18.8	30	3,664	-3.8	31	293	19.0	31	3,358	-18.0	53	153	11.6	31	3,469	-15.3	58	264	9.5	31	3,469	-15.3	58	264	9.5	31	3,469	-15.3	58	264	9.5							
600----	31	4,053	-20.7	46	276	40.2	31	4,330	-7.4	30	309	15.5	30	4,300	-7.8	29	298	21.5	31	3,957	-22.1	52	156	11.4	31	4,075	-18.6	52	259	13.2	31	4,075	-18.6	52	259	13.2	31	4,075	-18.6	52	259	13.2							
550----	31	4,691	-23.9	45	273	47.7	31	4,998	-11.8	30	303	16.3	30	4,961	-12.4	30	301	25.2	31	4,585	-26.1	52	158	12.6	31	4,715	-22.3	46	275	14.3	31	4,715	-22.3	46	275	14.3	31	4,715	-22.3	46	275	14.3							
500----	31	5,383	-28.1	43	272	53.4	31	5,726	-17.0	30	307	17.4	30	5,692	-17.7	30	300	30.6	31	5,275	-30.4	49	161	12.8	31	5,413	-26.7	44	275	20.5	31	5,413	-26.7	44	275	20.5	31	5,413	-26.7	44	275	20.5							
450----	31	6,127	-32.8	40	271	59.0	31	6,504	-22.8	30	316	18.0	30	6,461	-23.5	30	296	32.4	31	6,009	-35.5	46	172	13.7	31	6,156	-32.1	43			31	6,156	-32.1	43			31	6,156	-32.1	43									
400----	31	6,954	-37.6	268	61.9	31	7,364	-29.4	30	311	19.6	30	7,323	-30.1	30	294	35.3	31	6,827	-41.3	30	174	16.9	31	6,989	-37.7						31	6,989	-37.7				31	6,989	-37.7									
350----	31	7,865	-42.7	267	69.7	31	8,303	-36.7	30	309	19.6	30	8,259	-37.1	30	292	37.4	31	7,723	-47.0	30	189	20.4	31	7,898	-43.8						31	7,898	-43.8				31	7,898	-43.8									
300----	31	8,894	-48.3	267	66.4	31	9,352	-44.7	30	309	24.2	30	9,308	-44.8	30	291	42.3	31	8,733	-51.4	30	197	22.3	31	8,920	-50.1						31	8,920	-50.1				31	8,920	-50.1									
250----	31	10,053	-52.3	266	64.3	31	10,551	-52.8	30	309	24.2	30	10,507	-52.5	30	289	47.9	31	9,910	-53.3	30	203	18.8	30	10,099	-53.4						31	10,099	-53.4				31	10,099	-53.4									
200----	31	11,523	-52.3	265	70.7	29	11,963	-58.0	30	307	22.7	30	11,931	-57.4	30	285	50.1	31	11,351	-51.6	30	204	17.6	30	11,539	-52.0						31	11,539	-52.0				31	11,539	-52.0									
175----	31	12,389	-51.7	263	66.4	27	12,798	-59.2	30	304	30.8	30	12,774	-57.8	30	287	50.5	31	12,220	-50.5	30	218	19.0	30	12,407	-50.8						31	12,407	-50.8				31	12,407	-50.8									
150----	31	13,388	-52.2	264	61.0	27	13,761	-60.5	30	303	30.8	30	13,743	-59.5	30	288	45.6	31	13,227	-50.1	30	222	17.2	29	13,414	-50.2						31	13,414	-50.2				31	13,414	-50.2									
125----	31	14,566	-53.6	264	56.3	27	14,890	-63.1	30	303	30.8	30	14,862	-62.4	30	284	41.3	31	14,418	-49.9	30	224	17.0	28	14,606	-51.0						31	14,606	-51.0				31	14,606	-51.0									
100----	31	15,994	-56.0	266	50.3	26	16,252	-66.4	30	303	30.8	30	16,224	-65.7	30	286	32.2	31	15,878	-49.8	30	224	18.4	27	16,051	-51.9						31	16,051	-51.9				31	16,051	-51.9									
80----	31	17,409	-57.3	263	43.9	26	17,632	-65.6	30	303	30.8	30	17,604	-64.9	30	282	23.5	31	17,338	-50.2	30	227	20.5	26	17,488	-52.6						31	17,488	-52.6				31	17,488	-52.6									
60----	31	19,053	-57.7	272	33.4	26	19,281	-67.3	30	303	30.8	30	19,253	-66.5	30	282	14.3	31	19,011	-52.5	30	223	22.2	26	19,199	-54.8						31	19,199	-54.8				31	19,199	-54.8									
40----	31	20,775	-58.0	270	32.0	26	20,998	-67.1	30	303	30.8	30	20,970	-66.8	30	282	14.3	31	20,718	-52.5	30	223	22.2	26	20,906	-54.8						31	20,906	-54.8				31	20,906	-54.8									
20----	31	22,523	-58.3	269	26.4	25	22,746	-69.9	30	303	30.8	30	22,718	-69.2	30	282	14.3	31	22,458	-52.5	30	223	22.2	26	22,644	-55.1						31	22,644	-55.1				31	22,644	-55.1									
15----	31	24,271	-57.7	269	20.5	23	24,494	-69.9	30	303	30.8	30	24,467	-69.2	30	282	14.3	31	24,208	-52.5	30	223	22.2	26	24,394	-55.1						31	24,394	-55.1				31	24,394	-55.1									
10----	31	26,019	-55.9	272	25.0	16	26,242	-67.3	30	303	30.8	30	26,215	-66.6	30	282	14.3	31	25,948	-52.5	30	223	22.2	26	26,134	-54.8						31	26,134	-54.8				31	26,134	-54.8									
5----	31	27,767	-54.9	278	38.6	9	28,000	-67.3	30	303	30.8	30	27,970	-66.6	30	282	14.3	31	27,710	-52.5	30	223	22.2	26	27,896	-54.8						31	27,896	-54.8				31	27,896	-54.8									
0----	31	28,155	-54.9	278	38.6	9	28,388	-67.3	30	303	30.8	30	28,360	-66.6	30	282	14.3	31	28,102	-52.5	30	223	22.2	26	28,288	-54.8						31	28,288	-54.8				31	28,288	-54.8									

ATHENS, GA. (992 MB.)										BARROW, ALASKA (1024 MB.)										BARTER IS., ALASKA (1022 MB.)										BETHEL, ALASKA (1002 MB.)										BISMARCK, N. DAK. (960 MB.)									
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind									
										Direction	Speed									Direction	Speed									Direction	Speed									Direction	Speed								
SURFACE	31	246	1.1	85	352	2.3	31	8	-22.5	68	53	10.1	31	15	-21.1	65	100	5.4	31	5	-13.5	77	34	11.8	31	505	-12.6	78	283	4.2	31	505	-12.6	78	283	4.2	31	505	-12.6	78	283	4.2							
1,000----	31	179					31	183	-14.7	62	73	8.5	31	15	-16.5	66	98	10.6	31	5			34	12.0	31	190						31	190				31	190				31	190						
950----	31	600	5.2	57	294	3.8	31	573	-15.5	53	87	10.2	31	563	-16.4	57	109	12.6	31	446	-8.8	71	45	12.8	31	586						31	586				31	586				31	586						
900----	31	1,039	5.1	51	292	7.3	31	978	-14.21																																								

ATHENS, GA. (992 MB.)										BARROW, ALASKA (1024 MB.)										BARTER I.S., ALASKA (1022 MB.)										BETHEL, ALASKA (1002 MB.)										BISMARCK, N. DAK. (960 MB.)									
SURFACE	31	246	1.1	85	352	2.3	31	8	-22.5	68	53	10.1	31	15	-21.1	65	100	5.4	31	4	-13.5	77	34	11.8	31	505	-12.6	78	283	4.2																			
1,000--	31	179					31	183	-18.8	62	73	8.5	31	175	-18.5	66	99	10.8	31	5			42	12.0	31	190																							
950--	31	600	5.2	57	294	3.8	31	573	-15.5	53	87	10.2	31	563	-16.4	57	109	12.6	31	446	- 8.8	71	56	12.8	31	586			293	4.8																			
900--	31	1,039	5.1	51	292	7.3	31	978	-14.2	44	87	9.9	31	968	-14.5	48	113	11.8	31	867	- 7.3	67	70	8.5	31	1,003	- 6.1	66	298	13.9																			
850--	31	1,505	4.2	51	289	14.1	31	1,412	-14.0	43	88	11.0	31	1,402	-13.7	46	106	11.2	31	1,312	- 8.0	58	99	6.8	31	1,450	- 7.7	59	304	18.0																			
800--	31	1,997	2.3	51	282	17.4	31	1,872	-15.1	38	79	8.9	31	1,863	-14.6	45	101	10.8	31	1,781	-10.1	55	87	5.2	31	1,923	- 7.7	51	310	24.0																			
750--	31	2,516	.7	46	278	21.7	31	2,357	-16.7	35	78	5.6	31	2,347	-16.7	43	90	11.2	31	2,276	-12.7	55	81	4.4	31	2,421	- 9.4	46	313	24.2																			
700--	31	3,058	1.7	42	274	26.2	31	2,866	-19.3	37	67	5.2	31	2,866	-19.3	41	89	10.2	31	2,800	-15.7	54	107	5.2	31	2,955	-11.9	44	311	28.5																			
650--	31	3,652	- 5.0	41	272	31.0	31	3,423	-22.0	39	43	1.3	31	3,412	-22.0	38	85	10.4	31	3,352	-18.9	51	113	5.6	31	3,517	-14.4	44	308	30.5																			
600--	31	4,281	- 8.6	38	269	31.8	31	4,009	-25.3		206	1.1	31	4,001	-25.3	36	79	9.5	31	3,949	-22.5	49	108	5.2	31	4,123	-17.7	44	306	35.1																			
550--	31	4,947	-12.5	36	266	32.4	31	4,635	-29.1		80	1.9	31	4,623	-29.0		71	7.5	31	4,578	-26.5	47	84	4.2	31	4,765	-21.3	43	306	39.6																			
500--	31	5,673	-17.0		270	32.8	31	5,311	-33.4		240	4.2	31	5,305	-33.2		64	5.8	31	5,264	-31.0	45	45	3.8	31	5,467	-26.5	41	310	35.7																			
450--	31	6,449	-22.9		268	38.8	31	6,037	-38.4		179	3.4	31	6,035	-38.1		44	3.4	31	5,996	-36.1	45	13	4.8	31	6,214	-31.8	39	310	37.8																			
400--	7	7,310	-28.9		270	48.7	31	6,846	-44.1		197	5.0	31	6,842	-43.4		16	2.9	31	6,812	-41.8		84	4.2	31	7,044	-37.7			305	33.8																		
350--	31	8,058	-35.8				31	7,621	-41.5		204	49.6	31	7,620	-41.5		34	4.7	31	7,582	-47.5		121	7.7	31	7,815	-47.5																						
300--	31	9,307	-42.8				31	8,728	-54.9		210	9.3	31	8,733	-53.7		351	4.2	31	8,713	-52.3		132	6.2	31	8,975	-50.2																						
250--	31	10,517	-50.8				31	9,884	-57.9		221	10.8	30	9,900	-55.5		323	7.1	31	9,884	-54.5		213	8.3	31	10,153	-54.6																						
200--	30	11,947	-57.2				30	11,290	-57.2		238	12.8	29	11,323	-54.2		284	10.2	31	11,319	-52.4		171	11.2	31	11,579	-55.0																						
175--	30	12,787	-59.3				30	12,137	-56.1		232	15.5	29	12,181	-53.2		277	10.6	31	12,185	-51.0		176	13.7	31	12,434	-53.8																						
150--	30	13,751	-60.5				29	13,103	-55.6		237	20.7	29	13,175	-52.9		267	14.7	31	13,190	-50.4		185	17.2	31	13,427	-53.2																						
125--	30	14,881	-62.9				29	14,265	-55.6		253	21.1	29	14,350	-53.2		263	17.8	30	14,373	-50.2		208	21.9	31	14,601	-53.9																						
100--	30	16,244	-65.5				29	15,688	-55.4		250	26.5	29	15,788	-53.4		261	23.3	30	15,832	-49.9		218	21.3	30	16,029	-55.5																						
80--	30	17,603	-65.5				29	17,109	-56.2		242	29.9	28	17,229	-53.7		262	27.0	28	17,290	-50.7		217	27.0	29	17,447	-56.5																						
60--	30	19,363	-63.2				29	18,931	-57.3		258	36.8	28	19,075	-54.7		263	34.1	28	19,170	-50.7		219	26.6	29	19,266	-58.4																						
40--	30	20,487	-62.1				28	20,104	-57.7		249	37.4	27	20,247	-55.2		264	38.0	28	20,356	-51.2				29	20,412	-58.5																						
20--	29	21,874	-59.9				27	21,531	-58.6		250	44.8	26	21,671	-56.3		261	40.9	26	21,810	-51.6				28	21,807	-59.3																						
0--	26	23,675	-57.0				25	23,358	-59.5		253	54.1	18	23,687	-56.0		253	39.2	22	23,670	-51.7				26	23,608	-59.5																						
25--	25	24,830	-55.4				21	24,541	-59.4		254	57.1	16	24,886	-56.7		220	33.8	14	24,898	-51.5				20	24,731	-59.9																						
20--	23	26,259	-53.8				18	25,930	-60.0		8	26	23	23	23				5	26,425	-49.7				18	26,122	-60.7																						
15--	9	28,120	-51.3				5	30,500	-60.0															12	27,902	-60.5																							
10--																																																	

Average monthly values

DECEMBER 1958

See reference note at end of table

Average monthly values

DECEMBER 1958

Standard pressure surface (mb.)	Number of observations	GREENSBORO, N. C. (989 MB.)				HILO, T. H. (1014 MB.)				INTERNAT. FALLS, MINN. (975 MB.)				JACKSON, MISS. (1011 MB.)				JACKSONVILLE, FLA. (1021 MB.)													
		Dynamic height	Temperature	Relative humidity	Wind		Dynamic height	Temperature	Relative humidity	Wind		Dynamic height	Temperature	Relative humidity	Wind		Dynamic height	Temperature	Relative humidity	Wind											
					Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed	Direction	Speed								
SURFACE	31	273	- 2.0	79	303	2.1	31	11	19.6	81	282	2.9	31	360	-18.9	67	271	2.7	31	101	3.4	82	27	2.9	31	6	8.6	89	343	5.6	
1,000----	31	186			356		31	136	21.1	77	307	4.4	31	168			31	187	4.0	71	32	4.4	31	32	4.4	31	176	11.0	76	346	6.4
950-----	31	599	1.8	53	306	7.5	31	576	18.4	80	8	4.8	31	554	-17.2	71	266	5.6	31	612	6.1	57	346	2.9	31	604	11.5	72	330	2.7	
900-----	31	1,034	1.8	47	296	13.7	31	1,041	15.2	83	26	5.0	31	958	-15.5	73	283	10.8	31	1,050	6.7	55	283	6.8	31	1,057	10.1	69	264	5.4	
850-----	31	1,425	- 1.0	43	283	18.2	31	1,528	12.2	84	52	4.4	31	1,381	-13.8	67	311	11.8	5.5	31	1,188	5.5	46	273	12.2	31	1,531	8.7	56	279	9.9
800-----	31	1,981		43	278	20.7	31	2,031	10.5	67	62	3.8	31	1,853	-13.7	60	303	20.2	31	2,013	4.2	46	273	14.3	31	2,031	6.8	45	261	13.2	
750-----	31	2,495	- 2.2	38	278	25.0	31	2,568	9.7	42	27	1.9	31	2,340	-14.6	57	305	24.6	31	2,538	2.6	38	270	18.0	31	2,555	4.9	39	261	17.8	
700-----	30	3,041	- 4.3	36	275	26.4	31	3,139	7.3		290	3.1	31	2,864	-16.4	54	305	28.1	31	3,091	- 1.3	36	272	20.5	31	3,119	2.1	31	261	22.5	
650-----	30	3,618	- 7.0	36	272	31.2	31	3,745	4.5		291	5.6	31	3,416	-19.0	54	305	31.2	31	3,680	- 3.4	36	275	24.6	31	3,709	- 1.2	38	259	27.2	
600-----	30	4,244	-10.1	37	277	30.6	31	4,393	7.7		299	8.1	31	4,011	-22.4	54	306	35.3	31	4,310	- 7.4		268	29.1	31	4,348	- 4.8	39	259	32.0	
550-----	30	4,906	-14.4		281	31.4	31	5,081	- 3.6		299	12.6	31	4,643	-25.9	51	307	38.6	31	4,976	-12.0		270	32.6	31	5,021	- 8.9	41	258	36.1	
500-----	30	5,626	-19.1	36	281	36.1	31	5,833	- 2.3		297	16.3	31	5,333	-30.8	18	307	41.3	31	5,705	-16.5		268	40.2	31	5,755	-13.4	44	261	40.0	
450-----	30	6,397	-24.5	36	283	31.8	31	6,538	-13.8		292	19.0	31	5,969	-34.9		306	42.9	31	6,482	-21.8		267	48.3	31	6,545	-19.2	41	261	46.8	
400-----	30	7,251	-30.6		288	39.4	31	7,528	-20.0		299	22.3	31	6,889	-40.2		307	48.5	31	7,345	-28.1		265	51.2	30	7,416	-25.4	42	260	54.0	
350-----	30	8,186	-37.6		31	8,502	-28.0		288	28.3	31	7,790	-45.3		309	52.8	31	8,291	-34.9		262	57.5	30	8,372	-32.4	43	259	61.7	43	259	61.7
300-----	30	9,234	-44.6		31	9,592	-36.0		288	33.2	31	8,807	-48.3		309	58.4	31	9,350	-42.5		259	62.3	30	9,441	-40.4		258	69.	43	258	69.
250-----	30	10,436	-51.7		31	10,836	-44.4		287	42.7	31	9,993	-52.7		308	57.7	31	10,560	-50.4		258	71.8	30	10,661	-49.6		256	80.0		256	80.0
200-----	29	11,864	-56.9		31	12,301	-53.5		280	51.2	31	11,435	-51.7		305	49.9	31	11,993	-56.9		259	75.1	30	12,092	-58.2		256	75.3		256	75.3
175-----	29	12,909	-57.7		31	13,150	-58.8		285	49.9	31	12,283	-50.7		304	48.2	31	12,835	-58.8		261	67.2	30	12,927	-60.7		257	75.5		257	75.5
150-----	29	13,681	-58.2		31	14,107	-64.1		291	45.2	31	13,308	-50.6		302	45.2	31	13,798	-61.0		258	66.1	29	13,881	-63.0		258	69.		258	69.
125-----	28	14,823	-60.9		31	15,207	-70.2		281	36.1	30	14,492	-51.7		303	41.9	31	14,925	-63.5		261	55.7	29	14,997	-65.7		261	62.5		261	62.5
100-----	27	16,205	-62.7		31	16,515	-75.4		276	22.9	30	15,935	-53.0		306	39.0	31	16,285	-66.8		263	41.5	28	16,349	-68.7		261	54.7		261	54.7
80-----	26	17,579	-63.2		31	17,799	-77.1		290	8.5	30	17,369	-54.3		308	34.1	30	17,634	-67.0		263	27.9	27	17,681	-68.4		260	45.4		260	45.4
60-----	26	19,350	-62.5		31	19,484	-68.6		37	2.9	29	19,214	-55.9		311	30.6	28	19,384	-64.3		271	24.0	25	19,422	-65.2		264	37.1		264	37.1
50-----	26	20,479	-61.1		31	20,591	-63.5		59	1.9	26	20,375	-56.9		316	27	28	20,507	-62.0		276	17.0	24	20,542	-62.1		262	28.3		262	28.3
40-----	26	21,929	-59.9		30	21,977	-59.9		116	4.	24	21,800	-57.4		315	23.8	26	21,894	-60.2		273	18.6	22	21,929	-59.9		263	24.6		263	24.6
35-----	30	23,673	-57.2		30	23,731	-57.2		232	8.5	9	23,605	-58.8		323	28.9	25	23,703	-56.9		271	18.6	22	23,755	-56.9		267	23.7		267	23.7
30-----	25	24,828	-56.3		26	24,955	-53.7		81	3.1	24	24,749	-57.5		323	22.9	24	24,867	-55.3		269	27.5	13	24,909	-54.3						
25-----	23	26,256	-54.5		16	26,403	-51.6		16	20.4	14	26,154	-60.2		323	20.0	19	26,306	-53.0		273	33.2	5	26,332	-52.2						
20-----	17	28,105	-51.9		5	28,255	-52.2		5	27.4	5	27,974	-59.4				11	28,166	-50.5												

KING SALMON, ALASKA (1000 MB.)										KOTZEBUE, ALASKA (1015 MB.)										LAKE CHARLES, LA. (1021 MB.)										LANDER, WYO. (831 MB.)										LAS VEGAS, NEV. (945 MB.)									
SURFACE	31	15	- 6.3	83	31	7.9	31	5	-17.4	59	73	7.1	31	5	7.3	83	22	3.3	31	1,696	- 5.4	72	247	1.1	31	660	3.9	55	240	2.9																			
1,000---	31	12			59	9.9	31	114			46	6.2	31	180	9.0	72	28	4.4	31	216					31	197																							
950----	31	41.5	- 4.1	70	75	9.3	31	505	-12.2	49	74	9.7	31	609	10.0	64	303	3.1	31	624					31	615																							
900----	31	841	- 5.3	71	105	8.9	31	919	-12.2	51	94	7.3	31	1,056	9.6	59	305	6.0	31	1,059					31	1,066	11.0	31	6	5.8																			
850----	31	1,289	- 7.0	65	112	7.9	31	1,356	-12.1	53	102	6.6	31	1,529	8.2	55	293	9.3	31	1,514					31	1,541	9.8	28	359	6.8																			
800----	31	1,760	- 9.1	60	119	6.0	31	1,819	-13.0	52	99	5.8	31	2,029	7.1	44	284	13.4	31	1,995	- .3	57	185	.3	31	2,043	8.3	25	357	6.6																			
750----	31	2,256	-11.7	55	137	7.5	31	2,307	-14.9	51	107	5.8	31	2,558	4.8	38	279	16.3	31	2,511	- 1.2	49	289	6.0	31	2,569	5.9	24	345	6.4																			
700----	31	2,783	-14.9	56	135	6.8	31	2,829	-17.7	49	97	5.6	31	3,117	1.6	38	277	17.4	31	3,061	- 3.7	46	300	16.5	31	3,135	2.7	25	320	7.7																			
650----	31	3,181	-15.4	54	145	5.6	31	3,376	-20.7	48	114	5.0	31	3,702	1.6	38	277	20.2	31	3,672	- 7.2	46	304	25.0	31	3,724	- .8	26	317	11.1																			
600----	31	3,935	-21.7	50	154	4.8	31	3,969	-24.4	47	133	3.8	31	4,345	- .0		264	22.1	31	4,261	-11.0	44	304	30.8	31	4,366	- 4.8	27	314	14.5																			
550----	31	4,565	-25.6	48	150	6.6	31	4,591	-28.2	48	135	3.4	31	5,018	- 9.2		263	25.6	31	4,916	-15.3	43	302	31.4	31	5,036	- 9.3	31	5,118	18.8																			
500----	31	5,257	-30.2	48	150	5.8	31	5,277	-32.6		157	5.0	31	5,754	-14.4		267	34.0	31	5,637	-20.2	40	302	31.4	31	5,775	-14.7	307	20.7																				
450----	31	5,990	-35.4	47	180	5.8	31	6,005	-37.4		167	1.9	31	6,537	-20.1	33	265	38.4	31	6,400	-25.5	39	299	34.1	31	6,553	-21.0	30	205	27.3																			
400----	31	6,812	-41.0		198	7.5	31	6,817	-43.0		212	7.7	31	7,408	-26.6		256	41.9	31	7,254	-31.6	40	294	31.4	31	7,423	-28.0	303	24.8																				
350----	31	7,710	-46.1		210	8.3	31	7,707	-48.5		193	12.2	30	8,358	-33.7		256	44.3	31	8,185	-38.7				31	8,367	-35.9	303	25.2																				
300----	31	8,725	-50.3		224	11.3	31	8,710	-53.5		202	12.8	30	9,423	-41.3		262	50.9	31	9,227	-46.3				31	9,420	-44.5	306	29.3																				
250----	31	9,932	-52.3		203	12.6	31	9,917	-55.5		210	13.2	30	10,635	-39.5		262	50.9	31	10,439	-45.0				31	10,632	-43.0	306	32.8																				
200----	31	11,356	-50.8		222	13.2	31	11,301	-54.0		219	14.7	27	12,073	-57.9		30	11,835	-58.6					31	12,033	-59.8	300	37.4																					
175----	31	12,228	-49.8		226	14.9	31	12,158	-53.7		223	18.2	26	12,909	-59.6		30	12,677	-57.6					30	12,866	-59.8	300	38.0																					
150----	31	13,235	-49.2		214	13.9	30	13,137	-53.0		224	20.7	26	13,867	-62.2		29	13,644	-56.9					30	13,828	-61.0	301	36.9																					
125----	29	14,423	-48.5		218	16.7	29	14,300	-52.6		229	24.6	25	14,988	-65.3		29	14,797	-57.8					29	14,989	-63.3	297	31.6																					
100----	29	15,892	-48.8		226	17.8	29	15,742	-52.7		235	32.0	23	16,340	-68.2		29	16,204	-58.2					28	16,317	-66.7	295	27.5																					
80----	28	17,356	-49.1		227	20.2	27	17,158	-53.0		232	37.1	23	17,677	-68.7		28	17,602	-59.8					28	17,664	-66.9	303	18.2																					
60----	26	19,253	-49.5		233	20.0	26	19,017	-53.6		241	41.7	21	19,413	-65.5		27	19,397	-59.4					28	19,413	-64.2	322	10.1																					
50----	26	20,446	-50.2		239	21.3	26	20,168	-54.2		236	46.8	18	20,532	-62.7		27	20,539	-59.5					26	20,532	-62.4	353	7.9																					
40----	26	21,907	-50.8		245	21.5	26	21,614	-54.0		246	50.7	15	21,846	-55.1		27	21,919	-59.1					26	21,919	-59.1	338	7.9																					
30----	19	23,757	-50.1		266	33.8	21	23,519	-56.1		253	54.4	16	23,727	-56.4		23	23,752	-59.2					23	23,696	-60.3	8	7.7																					
25----	12	24,961	-49.0		280	39.2	20	24,674	-56.8				16	24,890	-54.7		22	24,900	-58.6					17	24,846	-59.3	5	4.8																					
20----	■	26,452	-48.3		8	26,030	-55.7						15	26,334	-52.4		17	26,304	-57.9					11	26,237	-58.5																							
15----	5	28,342	-49.3										10	28,208	-50.5		9	28,103	-59.0																														

LITTLE ROCK, ARK. (1015 MB.)										MCGRATH, ALASKA (998 MB.)										MEDFORD, OREG. (976 MB.)										MIAMI, FLA. (1018 MB.)										MTDLAND, TEX. (921 MB.)									
SURFACE	31	79	0.6	81	357	1.9	31	103	-23.7	66	358	1.5	31	401	4.1	97	63	0.3	31	4	17.6	89	15	2.9	31	871	0.5	76	318	1.5																			
1,000----	31	196	1.4	74	357	2.1	31	84			64	2.1	31	202					31	157	19.1	79	28	6.2	31	206																							
950-----	31	617	2.4	62	307	2.7	31	469	-15.7	64	58	9.3	31	622	5.6	89	314	.9	31	594	17.5	78	49	5.2	31	624																							
900-----	31	1,048	3.4	52	298	5.2	31	878	-11.2	64	75	10.4	31	1,066	7.3	93	177	3.3	31	1,058	14.9	77	87	1.5	31	1,060	4.8	58	308	2.1																			
850-----	31	1,512	2.6	50	301	8.3	31	1,320	-8.9	60	94	9.1	31	1,536	6.8	61	215	7.9	31	1,541	12.5	71	232	2.5	31	1,528	6.8	48	293	5.2																			
800-----	31	2,002	1.3	50	289	14.1	31	1,789	-9.9	53	103	6.6	31	2,032	4.4	56	239	13.0	31	2,048	10.9	53	252	6.2	31	2,027	7.0	33	289	11.4																			
750-----	31	2,525	.0	46	284	18.0	31	2,281	-12.3	50	130	5.4	31	2,550	1.7	54	250	16.7	31	2,584	8.5	51	259	10.2	31	2,554	4.9	31	283	11.8																			
700-----	31	3,072	2.7	43	282	21.9	31	2,810	-15.2	46	138	6.0	31	3,109	.8	58	265	19.2	31	3,153	5.7	47	255	14.3	31	3,143	2.0	28	285	13.4																			
650-----	31	3,657	-5.6	38	281	22.7	31	3,361	-17.7	47	138	6.2	31	3,688	-5.5	46	267	23.3	31	3,750	2.4	44	257	17.0	31	3,708			283	16.7																			
600-----	31	4,282	-9.5	34	281	26.2	31	3,958	-22.5	47	149	6.9	31	4,321	-8.6	44	271	27.5	31	4,398	-1.4	42	256	20.2	31	4,343	-5.4		291	18.2																			
550-----	31	4,947	-13.7		278	32.2	31	4,587	-26.7	49	156	7.7	31	4,978	-12.6	45	266	26.8	31	5,079	-6.0	41	261	21.5	31	5,016	-10.0		285	21.5																			
500-----	31	5,668	-18.8		274	31.4	31	5,273	-31.1	50	162	9.5	31	5,713	-17.3	46	261	26.4	31	5,826	-10.6	33	261	27.2	31	5,749	-15.1		281	23.5																			
450-----	31	6,441	-24.4		263	31.6	31	6,007	-36.2	47	151	9.5	31	6,481	-23.5	47	260	22.2	31	6,622	-16.1	37	261	29.9	31	6,529	-21.3		280	26.8																			
400-----	31	7,295	-30.6		257	31.6	31	6,821	-42.0		154	10.2	31	7,347	-29.0	47	258	22.7	31	7,507	-22.3	37	260	36.9	31	7,394	-28.1		281	30.1																			
350-----	31	8,231	-37.3		259	33.2	31	7,713	-47.8		154	13.4	31	8,286	-36.9	46	273	23.5	31	8,474	-29.2	36	260	40.2	31	8,339	-35.5		278	32.4																			
300-----	31	9,280	-44.5		258	36.9		8,720	-52.6		172	13.2	31	9,335	-45.3				31	9,557	-37.9		257	45.0	31	9,395	-43.0		275	34.5																			
250-----	31	10,483	-51.5		256	44.3		9,890	-54.0		173	11.6	31	10,529	-54.2				31	10,786	-47.9		256	54.5	31	10,611	-51.5		271	38.4																			
200-----	28	11,905	-57.2		31	57.2		10,526	-52.5		206	13.5	31	11,939	-52.5				31	12,223	-58.4		252	61.0	31	12,029	-57.6		274	40.0																			
175-----	24	12,753	-58.6		30	12.1		12,195	-52.0		202	15.5	31	12,774	-59.3				27	13,055	-62.5		257	62.3	31	12,869	-58.6		277	43.7																			
150-----	23	13,719	-59.8		30	13.1		13,196	-51.2		212	18.2	31	13,742	-59.1				26	13,996	-66.1				31	13,833	-61.0		283	33.3																			
125-----	20	14,859	-61.6		30	14.8		14,383	-50.8		219	20.4	31	14,880	-61.2				26	15,096	-68.8				31	14,957	-64.4		280	31.2																			
100-----	14	16,229	-64.3		30	15.8		15,838	-50.5		226	21.7	30	16,263	-62.4				25	16,423	-72.3				31	16,311	-67.7																						
80-----	11	17,612	-65.0		30	17,294	-51.0		232	20.9		237	20.9		17,639	-62.8			23	17,732	-73.1				30	17,652	-67.7																						
60-----	9	19,371	-64.3		30	19,146	-51.5		233	23.5		29	19,419	-61.1				23	19,437	-67.0					28	19,392	-64.7																						
50-----	8	20,491	-63.2		30	20,349	-52.3		231	24.6		29	20,555	-60.2				22	20,550	-62.2					28	20,508	-63.4																						
40-----	7	21,873	-62.0		30	21,792	-53.1		243	29.3		28	21,954	-59.6				21	21,940	-59.0					27	21,886	-61.2																						
30-----	5	23,639	-60.8		29	23,639	-53.8		250	34.0		24	23,899	-59.3				20	23,766	-60.8					25	23,685	-59.6																						
25-----					14	24,808	-53.9					24	24,895	-59.5				19	24,944	-51.8					24	24,833	-56.9																						
20-----					5	26,272	-54.3				15	26,288	-59.4					17	26,397	-49.7					22	26,256	-55.6																						
15-----																		11	28,279	-48.0					17	28,102	-53.6																						

See reference note at end of table

Average monthly values

DECEMBER 1958

See reference note at end of table

Average monthly values

DECEMBER 1958

See referenced note at end of Vol. 16

RAWINSONDE DATA

Average monthly values

DECEMBER 1958

Standard pressure surface (mb.)	TOPEKA, KANS. (991 MB.)						WASHINGTON, D. C. (1012 MB.)						WINNEMUCCA, NEV. (876 MB.)						YAKUTAT, ALASKA (1005 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity		Wind	Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind	
				Direction	Speed						Direction	Speed					Direction	Speed					Direction	Speed
SURFACE	31	269	-3.7	73	284	2.3	31	88	-2.1	66	336	2.7	31	1,310	-2.9	79	160	1.9	31	12	-0.8	83	99	6.8
1,000---	31	199					31	179	-2.8	58	320	4.4	31	242			31	51					82	5.2
950----	31	608	-1.5	63	298	6.0	31	585	-2.5	55	292	9.9	31	655			31	462					70	105
900----	31	1,038	-1.7	53	312	9.5	31	1,015	-3.9	57	285	17.2	31	1,094			31	896	-2.2				69	112
850----	31	1,494	-1.9	51	307	12.2	31	1,466	-4.4	53	286	21.7	31	1,551			31	1,348	-4.9				68	114
800----	31	1,978	-2.3	49	304	14.9	31	1,943	-5.4	51	284	27.0	31	2,046			31	243	8.5	31	1,822	-7.7	66	101
750----	31	2,489	-3.5	47	300	18.4	31	2,448	-6.8	48	281	33.0	31	2,564			31	267	12.2	31	2,322	-10.5	64	113
700----	31	3,033	-5.6	45	295	22.7	31	2,986	-8.9	45	279	38.8	31	3,122			31	274	14.1	31	2,847	-13.6	58	134
650----	31	3,606	-8.7	40	294	26.0	31	3,556	-11.5	40	276	42.9	31	3,702			31	283	19.0	31	3,405	-17.3	55	134
600----	31	4,227	-12.3	40	294	32.0	31	4,168	-14.4	36	275	48.7	31	4,335			31	290	22.1	31	4,006	-20.9	50	120
550----	31	4,883	-16.3	41	293	36.5	31	4,818	-17.9	37	272	54.0	31	4,998			31	285	28.1	31	4,636	-25.2	48	234
500----	31	5,598	-21.0	41	293	39.8	31	5,531	-22.1	38	274	53.6	31	5,726			31	286	33.2	31	5,330	-29.8	47	271
450----	31	6,361	-26.7	40	291	42.9	31	6,289	-27.2	39	274	56.7	31	6,496			31	289	36.3	31	6,068	-34.5	43	259
400----	31	7,208	-33.0	39	291	46.2	31	7,139	-33.2	39	272	64.5	31	7,358			31	290	37.3	31	6,890	-40.0		286
350----	31	8,134	-39.9		291	50.5	31	8,065	-39.6		270	65.6	31	8,297			31	292	41.1	31	7,790	-46.0		267
300----	31	9,170	-47.4		300	56.1	31	9,103	-46.7		273	66.2	31	9,345			31	294	43.9	31	8,804	-51.2		
250----	31	10,356	-54.1		287	54.2	31	10,295	-52.9		273	74.2	31	10,540			31	296	46.2	31	9,982	-53.2		
200----	31	11,775	-56.8		284	59.2	31	11,722	-55.6		269	81.6	31	11,949			31	298	49.5	31	11,426	-51.0		
175----	31	12,624	-55.5		286	56.5	31	12,574	-55.2		267	69.7	31	12,785			31	296	44.6	31	12,296	-50.4		
150----	31	13,606	-56.4		284	51.2	31	13,558	-55.7		266	63.3	31	13,758			31	294	40.2	31	13,303	-49.8		
125----	31	14,761	-57.6		288	48.5	31	14,714	-57.7		268	57.7	31	14,893			31	295	35.1	31	14,497	-49.6		
100----	31	16,164	-59.6		290	40.4	31	16,114	-60.3		271	50.7	31	16,278			31	300	27.7	31	15,958	-49.9		
80----	31	17,555	-61.1		289	30.5	31	17,502	-61.0		273	45.0	31	17,646			31	304	19.6	31	17,415	-50.9		
60----	31	19,339	-61.4		293	21.3	31	19,290	-60.7		275	29.5	31	19,419			31	315	11.6	31	19,284	-52.1		
50----	31	20,474	-61.0		299	18.4	31	20,427	-60.3		274	24.0	31	20,548			31	338	9.3	31	20,469	-52.7		
40----	31	21,859	-60.5		307	19.8	31	21,817	-60.0		280	22.3	31	21,936			31	9	7.5	31	21,921	-53.2		
30----	31	23,657	-59.5		309	17.8	31	23,612	-58.2		278	28.7	31	23,733			31	8	11.6	31	23,790	-54.4		
25----	31	24,792	-59.0		306	16.8	31	24,760	-57.1		275	25.6	31	24,869			31	1	14.5	31	24,962	-55.4		
20----	31	26,191	-58.3		296	21.9	31	26,186	-55.1				31	26,276			31	23	26.395	31	26,395	-56.0		
15----	31	28,001	-57.6				31	28,040	-53.1				31				31	20	28,218	31	28,218	-56.8		
10----							31	30,703	-45.3				31				31	7	30,823	31	30,823	-54.7		

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 6 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 10 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been

computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes, dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speeds are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See data beginning Table 1.2 in the January 1959 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

DECEMBER 1958

Date	Sun's zenith distance								
	A M					P M			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Dec. 1	1.04	1.16	1.28	1.44	1.42	1.40	1.26	1.16	1.06
2	1.13	1.22	1.31	1.45	1.41	1.39	1.25	1.13	1.03
3	1.10	1.21	1.27	1.41	1.38	1.35	1.21	1.10	1.00
4	1.14	1.22	1.34	1.46	1.48	1.45	1.26	1.16	1.08
5	1.13	1.24	1.35	1.48	1.50	1.46	1.29	1.14	1.01
6	1.10	1.20	1.30	1.44	1.45	1.44	1.29	1.14	1.01
7	1.07	1.18	1.29	1.45	1.49	1.46	1.27	1.13	1.01
8	1.14	1.25	1.36	1.49	1.50	1.47	1.27	1.13	1.01
9	1.09	1.18	1.29	1.43	1.46	1.43	1.26	1.15	1.06
10	1.13	1.23	1.31	1.46	1.48	1.45	1.26	1.15	1.08
11	1.13	1.25	1.34	1.46	1.48	1.47	1.32	1.22	1.14
12	1.09	1.20	1.32	1.43	1.43	1.40	1.25	1.13	1.03
13	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
14	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
15	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
16	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
17	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
18	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
19	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
20	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
21	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
22	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
23	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
24	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
25	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
26	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
27	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
28	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
29	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
30	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
31	1.09	1.19	1.26	1.42	1.43	1.39	1.26	1.14	1.03
Aver- ages	1.07	1.18	1.29	1.44	1.45	1.41	1.26	1.14	1.06

WASHINGTON, D. C. (WBCO)

	Air mass								
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
Dec. 1	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
2	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
3	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
4	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
5	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
6	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
7	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
8	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
9	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
10	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
11	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
12	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
13	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
14	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
15	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
16	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
17	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
18	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
19	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
20	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
21	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
22	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
23	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
24	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
25	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
26	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
27	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
28	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
29	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
30	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
31	0.63	0.73	0.89	1.07	0.93	0.82	0.93	1.07	1.28
Aver- ages	0.73	0.85	0.98	1.26	1.11	1.07	0.97	0.86	0.86

TUCSON, ARIZONA

	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Dec. 1	0.92	1.00	1.13	1.32	1.39	1.29	1.18	1.06	0.93
2	1.03	1.11	1.22	1.37	1.37	1.32	1.21	1.08	.93
3	.99	1.08	1.22	1.35	1.43	1.37	1.26	1.07	1.07
4	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
5	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
6	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
7	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
8	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
9	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
10	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
11	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
12	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
13	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
14	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
15	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
16	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
17	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
18	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
19	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
20	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
21	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
22	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
23	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
24	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
25	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
26	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
27	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
28	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
29	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
30	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
31	1.02	1.10	1.18	1.36	1.39	1.33	1.18	1.07	1.07
Aver- ages	0.98	1.07	1.19	1.37	1.41	1.37	1.20	1.07	0.97

* Values corresponding to true solar noon

K Smoke

H Haze

S Slight haze - indeterminate

M Moderate haze - indeterminate

MK Moderate smoke

Date	Sun's zenith distance								
	A. M.				*	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
MADISON, WIS.									
	Air mass								
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Dec. 1-----	-----	-----	-----	-----	M 1.33	-----	-----	-----	-----
4-----	S 1.04	S 1.12	S 1.31	-----	S 1.42	-----	-----	-----	-----
5-----	S 1.10	-----	-----	-----	-----	-----	-----	-----	-----
9-----	S 1.02	S 1.15	S 1.26	-----	S 1.37	-----	S 1.29	S 1.16	1.07
10-----	S 1.02	S 1.12	S 1.23	-----	-----	-----	-----	-----	-----
17-----	S .95	S 1.07	S 1.20	-----	S 1.28	-----	-----	-----	-----
24-----	S 1.07	-----	S 1.26	-----	-----	-----	-----	-----	-----
25-----	M .93	M 1.01	-----	-----	M 1.07	-----	-----	-----	-----
Aver- ages	1.02	1.09	1.25	-----	1.29	-----	1.29	1.16	1.07

SOLAR RADIATION DATA

DECEMBER 1958

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg																Avg								Avg
Date-----	3	4	5	6	7	8	9	10	11	12	13	14	15	16			17	18	19	20	21	22	23		
Langleys-----	206	16	42	261	527	431	223	244	339	201	184	481	303	83	373		309	69	214	277	412	529	500	73	296
Date-----	24	25	26	27	28	29	30	31	Avg																
Langleys-----	166	571	540	506	453	43	24	521	353																

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

	Avg																Avg								Avg
Date-----	3	4	5	6	7	8	9	10	11	12	13	14	15	16			17	18	19	20	21	22	23		
Langleys-----	91	9	45	64	29	42	64	49	28	80	76	48	-	41	63	(53)	79	64	93	43	30	40	43		56
Date-----	24	25	26	27	28	29	30	31	Avg																
Langleys-----	62	22	29	30	33	52	11	25	33																

Note: Langley is the unit used to denote one gram calorie per square centimeter

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

DECEMBER 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	13	*28	*54	73	*50	11	48	**30	47	39	**	**6	**5	*5	-63	-33	-16	7	39	7	65	60	*41	*42	28	37	*89	*40	*23	78	56	22

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

** Radiometer inoperative.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	-1	25	-25	---	-20	-19	50	---	3	59	-4	-12	-3	---	-12	---	---	28	43	20	3	25	46	6	---	---	23	-14	-1	---	---	---

Readings are omitted during precipitation periods.

The measurement is made with a Beckman and Whitley net exchange radiometer 6 feet above a plot of short grass. Temperature of the plate of the radiometer is estimated using air temperature measured in a standard shelter and empirically derived relationship between air temperature and plate temperature.

These data are of an experimental nature and are published as received from the University of Missouri at Columbia. The instrument with which they are measured has not been checked by the Weather Bureau.

Net radiation in langleys per day (midnight to midnight) at Mauna Loa Obs., Hawaii during the month

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	245	182	200	---	---	---	236	274	255	249	212	203	208	256	253	246	200	217	---	234	222	237	248	177	200	203	224	217	---	---	249	---

The measurements are made with a Beckman and Whitley net exchange radiometer mounted at a height of 46 inches over black, crushed lava. The temperature of the plate of the radiometer is assumed to be identical with that of the plate of a hemispheric radiometer similarly mounted and exposed.

Readings are omitted during precipitation periods

These data are of an experimental nature and are published as received from the Weather Bureau Observatory at Mauna Loa, T H

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received at a horizontal surface, tabulated in Langley's.

DECEMBER 1958

	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Texas	California Area	Cape Hatteras, N. C.	Caribou, Maine	Charlottesville, S. C.	Cleveland, Ohio	Columbia, Mo.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fort Worth, Texas	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.	
1958																																						
Dec. 3-----	311	77	213	79	48	10	119	162	117	118	384	620	151	24	101	77	82	230	282	35	361	265	346	228	47	159	254	100	72	67	54	347	421	346	196	176	302	
Dec. 4-----	340	98	370	121	375	---	145	19	218	15	387	655	305	94	307	23	97	231	214	111	360	272	336	219	395	131	270	86	208	330	100	348	47	346	196	176	302	
Dec. 5-----	339	99	338	75	161	---	177	59	180	62	328	588	318	146	292	92	253	213	166	119	---	263	305	223	404	177	245	174	227	139	237	317	47	346	196	176	302	
Dec. 6-----	337	100	273	15	329	16	187	162	95	151	73	611	316	193	282	146	243	167	169	180	---	263	305	223	404	177	245	174	227	139	237	317	47	346	196	176	302	
Dec. 7-----	332	100	273	15	329	16	187	162	95	151	73	611	316	193	282	146	243	167	169	180	---	263	305	223	404	177	245	174	227	139	237	317	47	346	196	176	302	
Dec. 8-----	332	100	273	15	329	16	187	162	95	151	73	611	316	193	282	146	243	167	169	180	---	263	305	223	404	177	245	174	227	139	237	317	47	346	196	176	302	
Dec. 9-----	257	23	56	21	323	22	205	142	61	134	204	(157)	297	186	285	241	95	224	---	176	331	221	114	179	314	114	176	77	276	---	196	334	194	175	222	143	286	
Average-----	321	80	228	76	267	21	165	139	110	125	268	(496)	272	153	248	112	150	199	196	112	349	231	279	196	267	131	224	96	253	227	148	311	118	274	187	129	270	
Dec. 10-----	---	19	76	14	61	9	113	205	68	224	39	180	199	183	74	217	214	223	263	163	337	254	80	174	90	129	252	63	273	---	273	327	161	71	131	(197)	283	
Dec. 11-----	305	26	61	31	151	19	---	131	43	135	388	---	16	176	12	142	151	209	162	171	345	243	335	175	29	103	100	104	103	242	163	327	272	357	76	89	281	
Dec. 12-----	309	11	558	139	278	---	166	98	190	115	344	---	179	101	212	154	220	242	---	146	341	264	154	177	338	105	266	104	103	242	163	327	272	357	76	89	281	
Dec. 13-----	309	11	558	139	278	---	166	98	190	115	344	---	179	101	212	154	220	242	---	146	341	264	154	177	338	105	266	104	103	242	163	327	272	357	76	89	281	
Dec. 14-----	322	10	92	160	81	19	---	132	193	165	74	209	42	190	28	180	230	223	314	157	352	265	214	114	130	269	117	132	62	200	331	159	377	210	(269)	299		
Dec. 15-----	316	11	194	61	264	7	83	65	110	64	264	193	61	76	119	218	238	224	294	161	338	263	349	211	148	130	263	46	269	302	152	338	165	376	219	240	298	
Dec. 16-----	319	19	331	27	335	14	70	156	140	186	384	548	336	97	247	169	---	234	294	134	348	257	345	221	288	141	216	118	306	324	232	314	168	345	101	163	293	
Average-----	313	14	181	85	181	12	107	139	134	158	229	275	153	133	124	189	211	219	272	156	345	256	239	192	196	127	244	86	222	183	193	328	169	279	152	(178)	290	
Dec. 17-----	309	0	349	70	333	11	90	90	173	73	382	578	325	158	241	48	243	220	266	173	345	244	328	214	211	146	204	134	289	323	213	---	54	341	192	161	293	
Dec. 18-----	310	26	358	43	281	9	92	137	133	106	295	350	306	184	---	103	219	196	288	64	314	254	322	217	382	88	257	93	271	288	227	---	152	331	161	216	290	
Dec. 19-----	302	26	362	52	332	10	101	174	123	126	306	187	349	71	296	25	177	157	283	41	325	252	251	196	380	116	249	146	293	320	61	---	21	291	158	232	230	
Dec. 20-----	299	21	291	18	291	9	81	193	108	168	180	478	296	165	261	168	174	81	294	140	335	215	290	186	368	108	235	34	232	289	223	---	181	142	177	166	279	
Dec. 21-----	307	33	356	116	336	12	121	223	39	194	172	555	337	179	---	177	211	52	283	151	297	168	300	72	362	124	258	116	233	333	92	---	209	243	156	181	230	
Dec. 22-----	245	6	360	141	331	7	117	219	54	190	---	606	317	202	111	166	210	240	273	172	233	111	91	170	394	148	173	141	285	331	218	---	191	142	76	107	199	
Dec. 23-----	303	12	310	40	---	8	171	63	94	36	154	635	278	109	246	109	204	63	264	57	323	141	310	198	264	164	188	144	217	131	103	---	63	135	69	138	261	
Average-----	296	18	341	69	317	9	111	157	103	131	248	484	315	152	263	116	206	144	279	114	310	198	264	164	184	353	131	223	115	260	288	162	---	124	232	141	172	255
Dec. 24-----	306	71	174	17	299	17	178	109	138	120	198	605	128	177	126	88	240	48	284	114	212	282	234	152	162	135	224	119	252	275	91	---	162	198	203	187	227	
Dec. 25-----	302	119	87	62	166	15	184	236	157	205	42	229	332	173	177	148	188	92	255	219	318	118	311	197	253	134	114	79	288	158	206	---	164	78	166	211	275	
Dec. 26-----	318	25	38	46	247	12	178	233	172	197	119	571	345	160	202	213	---	69	132	186	347	248	187	175	196	170	245	73	301	209	225	---	237	123	160	249	281	
Dec. 27-----	305	30	---	59	49	31	119	221	107	180	166	603	187	185	84	155	223	164	295	116	349	107	312	79	203	120	195	66	118	60	223	---	144	268	177	188	181	
Dec. 28-----	267	22	125	38	126	43	159	201	136	160	157	556	---	99	79	168	193	240	248	184	329	242	328	184	133	90	151	124	28	145	214	---	179	122	193	187	295	
Dec. 29-----	244	34	292	21	---	21	188	67	118	45	252	54	132	90	62	161	36	204	62	105	262	263	35	160	108	179	269	110	72	317	217	---	130	332	224	206	304	
Dec. 30-----	264	9	352	75	308	8	166	31	97	18	47	640	310	72	275	63	55	214	210	137	346	228	23	172	380	116	176	124	273	302	25	---	23	54	153	233	275	
Dec. 31-----	335	65	66	49	112	43	177	221	83	195	271	642	297	197	157	193	89	235	304	74	367	244	276	233	92	77	226	12	165	137	33	---	226	55	156	232	282	
Average-----	292	47	162	46	187	24	169	165	126	140	157	500	247	144	145	149	146	158	224	142	316	217	213	169	191	128	200	88	187	200	154	---	158	154	179	212	265	

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

		Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Madison, Wisc.	Matanuska, Alaska	Maua Loa Obs., Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Portland, Me.	Pullman, Wash.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	Ste. Marie, Mich.	Savoy, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Seattle (U. of W.), Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island	(Silver Hill Obs., Washington, D. C.)	
1958																																							
Dec. 3-----	29	239	281	28	276	58	58	6	554	133	323	360	111	134	26	---	---	30	372	100	103	78	99	338	32	372	314	53	134	80	57	15	283	118	37	69	356	520	30
Dec. 4-----	199	66	298	271	285	265	32	3	558	160	242	361	121	29	52	100	132	331	27	97	243	137	308	116	363	305	314	372	80	57	86	322	71	100	392	351	508	77	
Dec. 5-----	217	179	306	207	238	265	---	---	537	109	369	361	232	41	21	174	155	399	114	73	213	209	308	102	359	230	204	42	41	64	68	330	66	32	330	346	335	117	
Dec. 6-----	316	279	301	237	258	256	23	---	---	150	341	113	304	162	185	259	317	166	123	58	285	163	207	183	305	276	111	190	197	197	11	287	40	148	312	342	506	263	
Dec. 7-----	301	77	228	137	295	94	35	244	25	219	359	269	214	214	73	256	83	202	35	251	117	323	137	221	---	169	254	159	118	141	331	60	188	322	345	417	162		
Dec. 8-----	124	207	267	134	166	177	45	537	55	359	385	199	196	122	209	172	327	203	41	202	227	241	170	243	109	138	164	165	70	32	259	77	115	332	341	431	128		
Dec. 9-----	220	178	39	201	223	---	20	535	47	324	280	298	162	187	251	286	60	76	51	270	206	285	170	81	297	166	246	174	84	85	60	57	196	370	---	493	233		
Average-----	201	175	246	208	248	186	27	544	97	311	313	313	219	134	115	178	193	248	121	65	222	166	276	130	278	270	126	156	122	67	63	268	70	117	304	347	459	144	
Dec. 10-----	290	209	160	283	290	261	19	538	113	240	294	219	228	230	208	196	159	193	33	191	178	311	158	119	291	221	277	255	14	14	(69)	---	209	304	335	---	253		
Dec. 11-----	274	89	244	281	283	---	---	---	552	154	274	344	216	134	188	177	201	147	139	123	30	123	307	185	347	290	219	96	171	17	24	---	23	182	49	336	47		
Dec. 12-----	164	142	31	264	259	---	13	536	102	350	342	370	251	173	193	188	177	201	147	139	123	30	123	307	185	347	290	219	96	171	17	24	---	23	182	49	336	47	
Dec. 13-----	169	169	142	31	264	259	---	10	505	147	337	224	256	146	168	270	132	384	174	161	196	116	305	199	336	288	189	264	171	80	66	230	115	154	396	326	421	228	
Dec. 14-----	264	288	305	283	305	289	---	10	505	147	337	224	256	146	168	270	132	384	174	161	196	116	305	199	336	288	189	264	171	80	66	230	115	154	396	326	421	228	
Dec. 15-----	305	253	322	143	202	157	6	523	150	98	342	292	94	203	241	324	---	---	---	153	148	250	300	182	148	173	222	193	108	116	51	58	177	389	326	496	219		
Dec. 16-----	285	193	301	274	285	96	9	529	82	72	344	292	194	218	136	285	311	135	102	102	172	314	142	370	255	127	153	139	---	92	328	29	233	218	---	351	75		
Average-----	250	196	230	254	272	176	10	530	114	253	288	228	158	161	191	228	213	139	100	177	162	309	159	292	277	161	196	179	59	67	(214)	69	182	236	334	417	185		
Dec. 17-----	252	249	262	240	266	251	9	540	57	63	348	249	70	62	215	213	304	45	141	290	82	311	114	355	288	180	86	54	58	38	315	78	70	258	344	509	186		
Dec. 18-----	247	235	280	240	249	142	9	532	30	284	338	228	200	195	151	211	322	180	49	278	151	306	51	344	278	92	215	147	75	52	288	43	178	398	307	457	236		
Dec. 19-----	277	103	267	159	200	119	5	530	40	416	290	274	175	159	84	277	223	60	104	283	191	249	122	244	216	207	230	92	51	52	287	95	118	387	329	494	214		
Dec. 20-----	100	265	292	224	241	242	8	535	54	359	342	239	134	233	238	111	350	181	98	175	(145)	239	132	144	255	90	175	195	17	23	229	192	237	375	273	515	109		
Dec. 21-----	202	254	309	180	206	124	14	537	44	371	262	273	225	226	226	230	263	336	185	139	280	170	223	67	271	137	195	211	206	55	73	308	90	191	342	---	495	177	
Dec. 22-----	284	227	144	188	182	8	521	100	276	239	284	221	229	192	220	275	328	223	155	284	64	206	82	100	286	51	220	190	119	115	130	65	182	349	---	492	218		
Dec. 23-----	19	261	52	242	228	51	11	530	80	283	332	21	79	56	---	---	85	156	---	146	246	199	282	51	228	216	159	76	19	33	38	61	130	45	326	302	461	153	
Average-----	197	228	246	204	225	159	9	532	58	293	307	224	158	160	190	205	288	145	119	262	(143)	259	89	241	239	139	173	129	58	54	231	99	146	348	311	489	185		
Dec. 24-----	261	215	220	224	225	217	5	530	48	360	162	40	74	143	237	163	347	---	101	242	202	222	157	127	231	147	98	111	35	35	(242)	69	83	164	329	500	153		
Dec. 25-----	244	261	266	267	242	15	542	100	279	311	279	311	276	229	251	203	278	321	200	45	303	200	275	145	139	260	---	---	209	53	70	138	66	233	169	333	490	245	
Dec. 26-----	(289)	183	294	189	248	163	31	523	23	73	352	307	225	216	217	279	164	77	19	303	198	265	168	154	230	96	---	---	209	21	216	---	211	45	341	470	254		
Dec. 27-----	136	268	83	290	271	248	4	490	92	211	354	47	207	197	242	61	244	154	79	20	137	89	52	363	195	59	242	181	75	94	198	52	144	112	338	516	247		
Dec. 28-----	207	237	258	256	253	193	8	494	97	263	332	243	196	160	53	64	342	154	17	17	137	322	93	346	303	114	205	159	55	37	152	78	156	96	322	512	74		
Dec. 29-----	227	237	258	256	253	193	8	494	97	263	332	243	196	160	53	64	342	154	17	17	137	322	93	346	303	114	205	159	55	37	152	78	156	96	322	512	74		
Dec. 30-----	45	133	29	268	287	76	3	494	97	263	332	243	196	160	53	64	342	154	17	17	137	322	93	346	303	114	205	159	55	37	152	78	156	96	322	512	74		
Dec. 31-----	100	122	33	285	288	46	47	553	34	220	---	---	81	223	229	78	56	256	207	105	204	199	322	122	376	309	53	266	203	73	94	50	46	200	56	362	521	235	
Average-----	(157)	193	132	234	249	169	19	517	62	256	304	161	159	181	175	189	247	129	69	200	193	262	138	203	267	125	183	155	50	54	(145)	55	148	147	341	500	182		

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

CONDENSED CLIMATOLOGICAL SUMMARY

DELAYED DATA

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
May 1958 Alaska	2 Stations	86	31	Barter Island WB AP	-9	3	Cordova	22.19	2 Stations	T
June 1958 Alaska	Circle Hot Springs	93	20	Barrow WB AP	20	1	Cordova	14.30	Chitina	T
Hawaii	Puunene CAA AP	95	30	2 Stations	32	30+	East Honokau	20.10	12 Stations	.00
July 1958 Alaska	Eielson Field	92	4	Tanacross	25	26	Cordova	43.96	Northeast Cape	.06
Hawaii	Puunene CAA AP	93	19+	Mauna Loa Slope Obs.	32	7+	Kahana	44.09	3 Stations	.00
August 1958 Alaska	Ft. Yukon CAA	86	13	Tok	21	22	Cordova	30.10	Barter Island WB AP	.16
Hawaii	Puunene CAA AP	95	17+	Haleakala Summit	29	8	Kahana	45.13	Makaweli	.43
September 1958 Alaska	Tanacross	72	11	Tanacross	5	16	Little Port Walter	19.57	Hughes	T
Hawaii	Puunene CAA AP	95	22+	Haleakala Summit	31	26+	Kahana	18.85	3 Stations	.00
October 1958 Alaska	Uganik Bay	64	14	Tanacross	-32	21	Annette WB AP	34.87	Puntilla	.38
Hawaii	Puunene CAA AP	95	10	Mauna Loa Slope Obs.	31	2+	Kahana	43.95	Ukumehame	.38

See footnotes with current data.

CORRECTIONS

page 13	Chattanooga AP	Month: Annual 1954	September 20 should read September 30.
page 9	Ypsilanti, Mich.	Month: Annual 1957	excessive precipitation occurred on April 26: 0.25, 0.45, 0.56, 0.71, 0.77, 0.84, 0.85, 0.90, 0.90, 1.06, 1.11, 1.12, for the 5 minute through 180 minutes.
pages 410-411:	Tonopah and Yucca Flat, Nev.	Month: September 1958	these are special purpose stations from September 1, and rawinsondes are frequently terminated at 100 mbs.

RAWINSONDE DATA

Average monthly values

DELAYED DATA

1/ FT. HUACHUCA, ARIZ. (859 MB.)										2/ CAMAGUEY, CUBA (1000 MB.)										2/ FT. HUACHUCA, ARIZ. (860 MB.)										3/ CAMAGUEY, CUBA (1001 MB.)										4/ CAMAGUEY, CUBA (1001 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																			
						Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed	Direction	Speed	Direction	Speed														
SURFACE	26	1,428	20.7	68	183	0.9		28	122	23.1	96	83	1.5	15	1,428	18.9		222	0.7	30	122	21.7	95	30	1.9	30	122	20.2	95	61	2.7																		
1,000---	26	97						28	124	23.1	95	92	1.1	15	112					30	127	21.7	95	33	2.1	30	129	20.3	94	59	3.4																		
950---	26	550						28	582	23.5	78	97	13.0	15	565					30	583	22.1	78	75	10.1	30	579	21.0	80	77	19.4																		
900---	26	1,025						28	1,047	21.2	69	105	12.0	15	1,034					30	1,044	19.1	77	89	8.9	30	1,043	18.3	75	83	16.1																		
850---	26	1,523	20.6	65	179	1.5		28	1,541	18.3	67	109	9.1	15	1,528	20.5			207	1.5	30	1,534	16.2	76	105	6.0	30	1,532	15.7	67	83	12.8																	
800---	26	2,047	18.3	60	131	1.3		28	2,059	15.2	63	104	8.9	15	2,050	18.0			128	2.5	30	2,049	13.5	72	132	2.3	30	2,045	13.7	49	84	10.6																	
750---	26	2,602	14.5	63	144	1.5		28	2,603	12.1	57	109	7.1	15	2,597	14.0			115	5.0	30	2,597	10.8	64	174	1.9	30	2,594	12.1	37	89	9.5																	
700---	26	3,176	10.3	68	165	2.3		28	3,179	9.0	53	109	7.9	15	3,176	9.6			111	5.8	30	3,164	8.2	56	193	1.9	30	3,164	9.3	28	96	7.1																	
650---	26	3,793	6.0	70	182	4.0		28	3,793	5.7	48	111	6.9	15	3,785	4.6			112	6.2	30	3,777	5.1	46	219	1.7	30	3,775	6.0	100	3.6																		
600---	26	4,440	1.5	69	177	6.4		28	4,441	1.8	48	113	6.8	15	4,432	-1.3			94	4.0	30	4,423	1.4	43	263	4.2	30	4,427	2.3	97	2.3																		
550---	26	5,137	2.8	67	179	7.3		28	5,130	2.3	46	100	6.6	14	5,120	4.2			104	2.3	30	5,113	-2.8	40	282	6.2	30	5,118	-1.6	74	1.7																		
500---	26	5,887	-7.2	59	174	5.4		28	5,889	-7.2	46	82	6.0	14	5,869	-8.4			211	1.7	30	5,868	-7.5	33	303	6.8	30	5,878	-6.5	29	1.3																		
450---	26	6,708	-12.1	54	199	5.0		28	6,700	-12.3	44	90	7.5	14	6,680	-13.8			281	5.6	30	6,679	-12.7	33	298	8.3	30	6,689	-12.1	312	3.4																		
400---	25	7,592	-18.0	52	212	6.0		28	7,596	-18.2	39	64	6.9	14	7,562	-20.3			277	11.0	30	7,572	-18.7		295	11.2	30	7,585	-18.9	311	7.1																		
350---	24	8,575	-25.1	49	214	7.5		27	8,579	-25.2	35	42	7.9	14	8,538	-25.8			288	12.4	30	8,554	-25.8		290	13.7	30	8,566	-26.2	308	9.7																		
300---	24	9,674	-33.9	46	203	9.7		27	9,680	-33.9		38	8.7	14	9,628	-36.0			272	15.3	29	9,653	-34.1		300	18.6	30	9,663	-34.8	302	14.9																		
250---	24	10,925	-43.8		224	12.8		27	10,931	-44.0		23	8.7	14	10,871	-44.8			265	23.8	29	10,902	-44.4		298	22.1	30	10,910	-44.6	305	20.5																		
200---	21	12,390	-55.0		224	16.5		27	12,392	-55.4		6	10.6	14	12,330	-55.2			262	25.4	28	12,358	-56.0		294	23.1	30	12,367	-56.6	299	24.0																		
175---	20	13,233	-61.1		226	14.9		27	13,233	-61.4		349	16.9	13	13,172	-60.6			261	30.5	26	13,193	-62.2		292	27.0	30	13,206	-61.9	293	24.4																		
150---	13	14,161	-66.4		231	13.6		21	14,172	-66.6		359	11.0	10	14,133	-65.4			261	30.1	24	14,127	-68.6		286	26.2	30	14,147	-67.8	288	27.0																		
125---	10	15,246	-69.8		21	15,266	-70.0		48	7.5	7	15,223	-70.1					23	15,203	-74.0				288	24.4	30	15,228	-73.1	287	23.8																			
100---	5	16,563	-68.5		18	16,587	-71.6		70	7.5	6	16,549	-70.7					23	16,497	-76.1				306	14.7	28	16,526	-76.4	287	18.6																			
80---	5	17,916	-64.7		15	17,903	-70.8		81	14.1	6	17,884	-66.4					23	17,802	-71.3				10	6.0	26	17,812	-76.3	317	13.2																			
60---					12	19,639	-63.0				73	23.7							22	19,536	-63.8				84	7.7	25	19,499	-69.8	55	5.6																		
50---					9	20,769	-61.2												22	20,663	-60.7				93	13.2	25	20,604	-63.5	73	6.6																		
40---					7	22,165	-57.0												21	22,063	-57.3				96	20.5	20	21,989	-59.2	72	9.7																		
30---																			20	23,905	-53.2				18	23,820	-54.1																						
25---																			17	25,089	-50.3				16	24,991	-52.0																						
20---																			15	26,549	-47.1				13	26,449	-48.0																						
15---																			5	28,443	-44.7																												

4/ HAVANA, CUBA (1010 MB.)										5/ HAVANA, CUBA (1012 MB.)										6/ HAVANA, CUBA (1009 MB.)										7/ HAVANA, CUBA (1011 MB.)										8/ FT. HUACHUCA, ARIZ. (854 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind		Number of observations	Dynamic height	Temperature	Relative humidity	Wind																			
						Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed					Direction	Speed	Direction	Speed	Direction	Speed														
SURFACE	30	49	22.0	87	79	3.6		31	49	19.2	82	58	3.3	25	49	18.5	77	32	2.3	26	49	17.4	75	334	1.7	28	1,428	10.9	41	244	1.9																		
1,000---	30	136	22.4	83	87	5.8		31	153	19.3	79	61	4.8	25	125	19.0	74	44	3.1	26	142	17.4	72	353	2.1	28	96																						
950---	30	580	20.5	77	97	11.4		31	588	16.8	78	62	10.1	25	560	16.3	73	59	3.8	26	575	14.7	74	338	1.9	28	533																						
900---	30	1,049	17.7	72	100	9.1		31	1,053	13.6	77	62	7.9	25	1,024	13.4	69		0.26	26	1,036	12.2	68	291	4.6	28	992																						
850---	30	1,537	15.2	67	99	6.4		31	1,533	11.4	72	41	3.6	25	1,503	10.8	64	265	5.6	26	1,514	10.5	59	290	11.0	28	1,471	10.7	40	260	1.1																		
800---	30	2,049	12.6	62	106	5.6		31	2,039	9.9	56	310	1.9	25	2,009	10.1		47		44			282	13.6	28	1,978	9.7	32	236	5.6																			
750---	30	2,586	10.8	43	104	3.6		31	2,574	8.4	40	298	4.0	25	2,542	8.3							277	18.4	28	2,505	6.0	30	2,505	6.0	30	2,505	6.0																
700---	30	3,164	8.3	35	143	2.3		31	3,145	6.0	31	278	6.9	25	3,114	6.3							254	23.5	26	3,118	5.0		3,071	2.3	243	13.4																	
650---	29	3,770	5.2	28	212	1.3		31	3,744	2.8	28	267	10.6	25	3,714	2.9							257	26.8	26	3,715	1.8		2,758	28.3	28	3,658	-1.0																
600---	29	4,423	1.7	24	250	2.7		31	4,394	1.0		274	13.7	25	4,363	-7.7							256	29.7	26	4,361	-1.7		2,731	32.6	28	4,299	-5.0																
550---	29	5,108	-2.3		269	4.2		31	5,075	-5.2		272	15.3	25	5,046	-4.8							258	36.3	26	5,037	-5.9		2,717	37.1	28	4,968	-9.3																
500---	29	5,871	-7.2		271	6.9		31	5,828	-10.1		277	20.0	24	5,799	-9.5							257	39.4	26	5,791	-10.8		2,688	41.1	28	5,708	-14.5																
450---	29	6,674	-13.0		282	11.2		31	6,624	-15.6		280	28.3	24	6,598	-14.9							259	45.8	26	6,584	-16.1		2,677	43.5	28	6,484	-20.3																
400---	29	7,577	-19.7		282	14.1		30	7,514	-21.9		274	33.0	21	7,492	-20.5	43						251	47.6	26	7,476	-22.2		2,651	51.4	28	7,360	-27.0																
350---	29	8,554	-26.7		281																																												

RAWINSONDE DATA

Average monthly values

DELAYED DATA

10/ MERIDA, MEXICO (1011 MB.)										10/ SWAN ISLAND, W. I. (1010 MB.)										10/ YUMA, ARIZ. (995 MB.)										11/ FT. HUACHUCA, ARIZ. (859 MB.)										11/ HAVANA, CUBA (1010 MB.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Standard pressure surface (mb.)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
SURFACE		30		11		24.0		95		86		3.3		30		10		27.3		91		91		7.5		29		105		25.5		38		248		0.7		31		1,428		21.6		60		230		0.5		30		49		24.6		90		88		4.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
1,000----		30		108		24.4		92		99		8.3		30		102		26.6		90		90		9.3		29		58		26.8		29		264		5.4		31		77		30		134		24.9		87		92		6.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
950----		30		557		23.5		85		123		17.8		30		548		23.7		86		90		13.6		29		507		26.8		29		264		5.4		31		528		77		30		134		24.9		87		92		6.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
900----		30		1,033		21.7		73		122		15.9		30		1,026		21.0		81		108		14.9		29		1,885		25.1		26		244		6.8		31		1,005		22.5		54		241		9.9		30		1,057		20.7		71		112		15.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
850----		30		2,048		16.4		63		123		11.4		30		2,039		15.8		71		109		12.0		29		2,006		18.4		31		212		10.4		30		2,038		20.4		49		259		2.7		30		2,068		14.9		65		115		12.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
800----		30		2,594		13.3		61		125		9.7		30		2,579		13.0		63		114		11.6		29		2,550		14.9		30		2,584		16.6		52		299		2.9		30		2,606		12.0		60		113		10.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
750----		30		3,174		9.8		60		128		8.7		30		3,164		9.7		64		116		10.8		29		3,134		11.0		34		205		14.7		31		3,176		12.3		56		310		3.3		30		3,189		8.8		51		108		9.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
700----		30		3,782		6.1		60		127		7.5		30		3,769		6.2		62		115		9.9		29		3,744		6.9		31		211		16.9		30		3,783		7.8		55		229		9.9		30		3,792		5.4		47		109		7.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
650----		30		4,438		2.2		56		118		6.9		30		4,429		2.3		61		112		8.5		29		4,400		2.3		30		218		19.0		31		4,448		3.1		56		212		2.5		30		4,450		1.5		44		110		6.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
600----		30		5,130		-2.0		57		109		6.0		30		5,119		-1.7		60		113		6.0		29		5,092		-2.4		30		222		20.4		31		5,139		-1.4		51		219		3.8		30		5,134		-2.7		46		109		6.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
550----		30		5,889		-5.0		44		76		5.4		30		5,880		-6.2		59		103		4.4		29		5,847		-7.3		30		232		21.7		31		5,902		-8.8		46		234		5.0		30		5,921		17.7		68		132		13.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
500----		30		6,699		-10.8		36		69		4.0		30		6,692		-11.0		56		89		4.0		29		6,653		-12.9		30		262		23.7		31		6,711		-11.0		260		6.6		30		7,602		-19.0		48		112		6.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
450----		30		7,609		-17.8		48		77		8.9		30		7,595		-17.7		42		86		9.5		29		7,596		-18.2		30		243		17.8		28		7,609		-16.7		44		109		5.0		31		7,602		-17.9		40		77		7.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
400----		30		8,594		-24.9		44		61		6.4		30		8,576		-24.6		40		73		7.1		29		8,579		-25.2		30		243		19.6		27		8,598		-23.8		44		143		5.8		31		8,586		-24.8		32		72		5.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
350----		30		9,696		-33.5		44		54		2.7		30		9,680		-33.2		42		41		3.4		29		9,680		-33.4		30		248		24.0		26		9,705		-31.9		41		109		5.4		30		9,691		-33.1		26		4.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
300----		30		10,949		-43.6				326		5.4		30		10,934		-43.5				321		3.8		29		10,936		-42.6		30		249		27.9		26		10,968		-41.7		126		4.2		30		10,946		-43.1		356		3.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
250----		30		12,410		-55.5				300		9.7		27		12,397		-55.8				302		9.3		29		12,410		-53.0		30		248		28.5		25		12,442		-53.6		137		5.0		30		12,411		-54.8		4		3.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
200----		30		13,249		-61.7				305		13.2		24		13,233		-62.2				297		10.6		31		13,259		-58.6		30		252		24.2		25		13,288		-60.1		144		4.0		30		13,253		-61.1		14		5.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
150----		30		14,190		-67.3				341		11.0		24		14,171		-68.5				316		7.9		29		14,215		-64.2		30		251		22.9		22		14,238		-66.3		173		3.4		30		14,196		-67.0		27		6.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
100----		30		16,700		-79.9				43		13.4		24		16,686		-81.7				5		5.4		29		16,719		-72.0		30		255		21.5		10		15,325		-70.5		29		15,355		-71.4		50		10.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
50----		30		17,925		-68.1				85		28.1		21		17,893		-69.2				76		23.8		29		17,977		-66.8		30		220		1.1		5		16,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668		-71.4		29		15,668	

Average monthly values

DELAYED DATA

Standard pressure surface (mb.)	Number of observations	13/ YUMA, ARIZ. (994 MB.)				14/ FT. HUACHUCA, ARIZ. (858 MB.)				14/ MERIDA, MEXICO (1012 MB.)				14/ SAN JUAN, P. R. (1013 MB.)				14/ TONOPAH, NEV. (838 MB.)												
		Dynamic height	Temperature	Relative humidity	Wind	Dynamic height	Temperature	Relative humidity	Wind	Dynamic height	Temperature	Relative humidity	Wind	Dynamic height	Temperature	Relative humidity	Wind	Dynamic height	Temperature	Relative humidity	Wind									
					Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed	
SURFACE	30	105	25.7	45	322	0.1	29	1,428	13.0	74	168	0.5	31	111	21.1	98	72	1.9	31	6	24.7	87	125	2.7	31	1,650	6.0	42	1	6.0
3 000----	30	57					29	115					31	116	22.7	88	78	5.0	31	13	25.4	78	104	7.1	31	1,602				
950----	30	310	27.3	40	270	.5	29	530					31	561	22.4	81	93	1.1	31	573	22.8	79	98	14	31	1,078				
900----	30	887	25.0	40	243	.9	29	1,013					31	1,036	19.8	78	92	6.9	31	1,044	20.0	77	101	14.1	31	1,056				
850----	30	1,486	21.5	42	193	2.3	29	1,502	13.4	69	168	.5	31	1,528	17.0	72	86	4.6	31	1,536	17.3	75	95	12.8	31	1,532				
800----	30	2,007	17.3	43	186	2.3	29	2,013	11.9	60	145	2.5	31	2,044	14.2	68	75	2.9	31	2,052	14.4	70	96	11.6	31	2,037	11.9	31	26	3.8
750----	30	2,552	13.1	48	180	3.8	29	2,542	9.0	53	149	3.4	31	2,588	11.7	61	107	2.1	31	2,600	11.8	59	100	10.2	31	2,573	8.8	32	176	1.5
700----	30	3,130	8.9	50	175	3.8	29	3,119	5.9	44	172	2.9	31	3,164	9.5	53	114	1.9	31	3,171	8.7	49	96	9.7	31	3,142	5.4	32	207	.9
650----	30	3,739	5.0	47	221	2.3	29	3,712	2.3	40	184	3.1	31	3,772	6.4	48	65	1.9	31	3,781	5.5	43	91	6.2	31	3,740	1.6	33	314	2.3
600----	30	4,390	1.4	42	245	3.3	29	4,364	-1.7				31	4,429	2.9	42	37	3.1	31	4,431	1.3	43	86	4.6	31	4,383	-2.2		305	5.0
550----	30	5,080	-2.9		236	3.8	29	5,040	-5.8				31	5,122	-1.1	39	45	2.3	31	5,119	-2.5	39	85	4.0	31	5,064	-6.1		311	7.1
500----	30	5,834	-8.0		251	7.1	29	5,791	-11.1				31	5,883	-5.7	35	19	2.7	31	5,878	-6.9	36	98	3.3	31	5,811	-11.3		318	9.3
450----	30	6,640	-13.4		262	11.2	29	6,581	-17.1				31	6,695	-10.6	33	22	3.6	31	6,685	-12.2		121	5.4	31	6,598	-17.3		316	9.1
400----	30	7,532	-19.6		252	14.1	29	7,463	-23.7				31	7,599	-16.6	31	14	5.2	31	7,584	-18.3		67	1.1	31	7,483	-24.3		316	11.8
350----	30	8,510	-26.7		249	18.4	29	8,427	-30.7				31	8,589	-23.7		1	4.8	31	8,567	-25.3		318	2.9	31	8,442	-31.9		309	15.1
300----	30	9,606	-34.2		243	25.2	29	9,505	-37.9				31	9,696	-32.4		338	6.6	31	9,668	-33.9		333	5.6	31	9,512	-40.4		303	17.2
250----	30	10,860	-42.4		244	34.1	29	10,740	-46.2				31	10,955	-42.6		335	9.5	31	10,918	-44.2		328	8	31	10,731	-49.4		297	22.5
200----	29	12,343	-52.1		242	40.8	29	12,196	-54.3				31	12,423	-54.6		329	13.4	31	12,377	-55.9		316	15.5	30	12,171	-56.7		296	23.3
175----	28	13,197	-57.8		236	40.2	25	13,043	-58.1				31	13,265	-61.3		323	13.4	31	13,216	-61.7		316	18.4	30	13,012	-59.5		287	23.7
150----	27	14,155	-63.3		242	36.5	24	14,009	-63.3				31	14,207	-67.8		320	12.6	31	14,158	-67.4		312	18.4	30	13,973	-61.0		280	24.4
125----	23	15,270	-68.9		245	27.0	17	15,102	-65.5				31	15,288	-73.7		337	9.7	31	15,245	-71.7		315	13.4	29	15,101	-62.9		279	25.0
100----	14	16,601	-69.8		265	15.9	9	16,469	-67.7				31	16,579	-76.0		20	6.8	31	16,553	-73.8		349	6.2	29	16,470	-64.3		277	16.5
80----	12	17,935	-66.2		105	1.7							31	17,880	-71.7		77	9.9	31	17,865	-70.3		55	7.7	15	17,843	-64.0		291	11.0
60----	9	19,718	-59.9										31	19,614	-63.8		96	14.9	31	19,602	-63.4		80	18.6	14	19,622	-60.8		311	6.0
50----	8	20,877	-57.4										31	20,743	-60.0		90	18.0	30	20,732	-59.9		83	23.3	12	20,760	-59.7		350	4.6
40----	7	22,301	-54.2										31	22,154	-55.8		91	22.9	27	22,140	-56.0		83	29.3	12	22,162	-57.6		351	3.8
30----	5	24,164	-51.0										29	24,008	-51.2		87	26.4	26	23,990	-50.9		87	36.7	12	23,989	-54.9		303	6.2
20----													27	25,196	-49.4		84	27.5	26	25,182	-48.8		91	37.8	6	25,144	-52.8			
15----													21	26,660	-46.5		23	26.6	23	26,654	-46.1		88	35.1						
													11	28,579	-44.0				21	28,583	-43.6		88	34.3						

14/ YUCCA FLAT, NEW. (883 MB.)										14/ YUMA, ARIZ. (996 MB.)										15/ FT. HUACHUCA, ARIZ. (858 MB.)										15/ HAVANA, CUBA (1209 MB.)										15/ MERIDA, MEXICO (1014 MB.)									
SURFACE	22	1,196	7.4	37	334	1.5	28	105	20.8	46	62	0.7	26	1,428	7.5	58	233	0.9	19	49	22.9	90	98	3.1	30	11	21.4	97	80	3.1																			
1,000--	22	156					28	98					26	140					19	127	23.6	85	95	5.0	30	128	23.2	89	95	7.1																			
950--	22	589					28	547	24.3	36	52	4.4	26	568					19	575	21.7	79	83	14.7	30	575	22.1	82	105	11																			
900--	22	1,042					28	1,017	21.5	36	72	5.0	26	1,021					19	1,045	18.8	76	83	13.9	30	1,047	19.5	77	105	10.2																			
850--	22	1,522	16.0	29	8	4.4	28	1,508	17.9	39	71	4.8	26	1,500	8.7	49	227	.9	19	1,535	16.0	73	89	7.7	30	1,539	16.6	75	106	8.1																			
800--	22	2,034	13.0	31	41	2.5	28	2,022	13.7	41	62	3.6	26	2,004	8.7	38	176	2.1	19	2,049	13.2	64	102	14.7	30	2,054	13.9	71	116	5.8																			
750--	22	2,570	9.9	31	326	1.5	28	2,559	9.5	41	69	3.6	26	2,533	6.1	40	226	4.2	19	2,587	11.3	51	110	6.0	30	2,595	11.3	63	116	5.8																			
700--	22	3,142	6.0	35	283	2.3	28	3,131	5.6	40	85	2.3	26	3,097	3.2	30	247	9.1	19	3,166	8.8	40	101	6.2	30	3,171	8.7	53	122	5.4																			
650--	22	3,737	1.7		314	3.8	28	3,731	1.8	33	91	1.7	26	3,688	2.2		259	11.6	19	3,772	2.8		105	6.0		3,775	2.5	45	126	5.1																			
600--	22	4,365	2.1		304	3.1	28	4,353	2.3		337	1.9	26	4,333	-3.4		275	11.0	19	4,428	2.0		114	5.2		4,431	1.9	38	136	6.2																			
550--	22	5,061	-6.3		335	8.9	28	5,056	-6.6		312	5.4	26	5,004	-7.5		271	11.8	19	5,113	-2.5		98	5.4		5,118	-2.0	32	140	5.2																			
500--	22	5,810	-11.6		337	12.4	28	5,797	-11.7		307	7.9	26	5,751	-12.3		281	13.7	19	5,876	-7.6		108	3.3		5,880	-6.5		171	5.0																			
450--	22	6,601	-17.4		331	15.3	28	6,591	-17.8		306	8.1	26	6,539	-18.0		279	17.2	19	6,678	-12.7		79	.5		6,686	-11.7		177	5.0																			
400--	22	7,481	-24.2		328	18.2	28	7,467	-24.2		303	11.8	26	7,419	-24.4		272	20.9	19	7,580	-19.3		158	1.7	30	7,587	-18.4		197	6.4																			
350--	22	8,441	-31.4		333	15.5	28	8,427	-31.3		295	14.1	26	8,377	-31.9		273	18.4	19	8,559	-26.6		280	2.1	30	8,570	-25.8		210	7.5																			
300--	22	9,515	-39.8		314	19.6	28	9,502	-39.0		278	20.0	25	9,445	-40.4		273	24.8	19	9,655	-35.3		286	6.2	30	9,667	-34.5		227	8.1																			
250--	22	10,737	-48.5		301	20.9	28	10,730	-47.4		270	25.0	25	10,663	-49.2		277	24.8	19	10,899	-45.5		267	3.4	30	10,915	-44.7		254	11.0																			
200--	22	12,179	-56.4		286	23.7	28	12,179	-55.3		250	34.0	21	12,095	-56.6		271	28.7	19	12,365	-57.0		236	9.3	30	12,365	-56.5		254	16.3																			
150--	22	14,021	-58.8		284	25.8	28	14,024	-58.6		257	35.7	19	13,950	-59.1		280	31.2	19	13,183	-62.8		249	11.8	30	13,205	-62.0		238	17.4																			
125--	22	13,987	-60.3		268	24.2	28	13,986	-61.7		261	33.2	15	13,914	-62.8		280	35.3	17	14,111	-67.1		265	16.7	30	14,146	-67.2		260	18.0																			
100--	21	15,120	-63.0		269	23.3	24	15,105	-64.6		266	23.5	8	15,018	-65.5		15	15,195	-71.0		254	15.7	30	15,233	-71.9		256	14.3		256	14.0																		
80--	19	16,484	-65.6		277	17.2	18	16,455	-66.2		269	16.5					14	16,507	-74.1		274	6.9	30	16,538	-74.6		261	7.9		261	7.9																		
60--	18	17,848	-64.6		284	10.4	12	17,802	-65.3		267	10.8					13	17,809	-72.4		39	2.1	30	17,825	-74.7		69	2.9		69	2.9																		
50--	18	19,618	-61.5		318	6.8	11	19,569	-63.3								13	19,525	-66.7		96	6.2	30	19,541	-66.2		97	9.7		97	9.7																		
40--	17	20,757	-59.6		360	4.2	9	20,703	-60.6								12	20,638	-61.5		154	1.1	30	20,658	-61.6		88	7.7		88	7.7																		
30--	16	22,162	-57.7		321	2.9	8	22,096	-57.6		6	23,933	-54.0				11	22,040	-56.1		284	4.4	30	22,060	-56.3		79	4.4		79	4.4																		
20--	15	23,990	-54.7		303	5.2	6	23,923	-54.7		5	25,102	-51.3				10	23,887	-52.9		29	23,907	-53.2		29	23,907	-53.2		75	7.9		75	7.9																
15--	10	25,159	-53.2				5	25,102	-51.3								6	25,041	-53.9		25	25,085	-50.9		25	25,085	-50.9		78	8.5		78	8.5																
							5	26,549	-51.0								6	26,469	-49.8						23	26,552	-48.8		42	3.8		42	3.8																
																									13	28,445	-46.0																						

		15/ YUMA, ARIZ. (1000 MB.)			
SURFACE	30	105	11.7	40	13 2.3
1,000--		127			5 3.8
950--		566	17.0	33	337 5.8
900--	30	1,022	14.5	32	351 4.4
850--	30	1,502	11.4	35	344 1.7
800--	30	2,006	8.6	34	245 7.7
750--	30	2,539	6.0	27	252 3.8
700--	30	3,100	3.3	24	285 0.8
650--	30	3,696	2		285 9.3
600--	30	4,335	- 3.8		286 12.2
550--	30	5,014	- 8.1		291 13.9
500--	30	5,751	-13.1		293 16.9
450--	30	6,542	-18.9		286 20.0
400--	30	7,413	-25.5		286 22.3
350--	30	8,367	-37.8		286 24.6
300--	30	9,435	-40.4		290 28.8
250--	30	10,656	-48.8		292 32.6
200--	30	12,096	-56.7		291 36.9
175--	27	12,926	-59.1		282 38.6
150--	26	13,887	-61.4		276 39.4
125--	26	15,010	-64.1		272 29.3
100--	18	16,360	-66.6		278 26.0
80--	10	17,774	-69.1		
60--	7	19,474	-65.1		
50--	5	20,573	-62.7		
40--	5	21,954	-60.7		

M Missing

1/ August 1957	9/ May 1958
2/ September 1957	10/ June 1958
3/ October 1957	11/ July 1958
4/ November 1957	12/ August 1958
5/ December 1957	13/ September 1958
6/ January 1958	14/ October 1958
7/ February 1958	15/ November 1958
8/ April 1958	

Also see reference notes with current data.

See reference note at end of table

NET RADIATION

DELAYED DATA

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

APRIL 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	253	---	---	---	---	---	---	340	218	128	---	385	287	---	---

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

MAY 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	359	---	---	---	---	407	---	---	398	253	429	413	387	342	---	---	---	---	413	---	---	---	293	---	---	444	---	---	310	---	---	---

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

JUNE 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	---	245	438	454	---	420	---	457	---	---	---	---	---	---	---	---	477	---	276	448	---	---	---	---	---	484	450	465	472	480	---	---

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

JULY 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	497	---	---	---	---	---	---	471	---	---	---	470	481	228	---	---	---	---	---	---	---	212	478	---	---	---	344	---	459	---	---	---

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

AUGUST 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	---	335	445	410	384	378	388	412	332	404	---	---	356	399	---	---	378	389	387	---	---	361	---	---	---	317	326	329	320	---	---	---

DELAYED DATA

Net radiation in langleys per day (midnight to midnight) at Mauna Loa, T.H., during the month

MAY 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	369	361	315	---	367	304	395	380	325	319	323	379	380	386	400	300	391	---	332	---	433	355	---	386	408	400	---	422	415	388	---	---

Net radiation in langleys per day (midnight to midnight) at Mauna Loa, T.H., during the month

JUNE 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	450	---	430	404	339	433	455	---	432	427	457	386	378	429	348	346	231	---	435	462	447	427	442	401	---	424	324	---	332	---	---	

Net radiation in langleys per day (midnight to midnight) at Mauna Loa, T. H., during the month

JULY 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	428	---	---	316	389	---	427	---	---	---	444	419	416	379	380	---	---	---	---	---	---	---	---	---	---	481	449	464	---	461	455	---

Net radiation in langleys per day (midnight to midnight) at Mauna Loa, T. H., during the month

AUGUST 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	---	473	435	460	445	---	---	---	---	501	441	404	365	462	423	442	462	475	467	439	---	---	---	---	---	---	---	---	389	418	403	---

Net radiation in langleys per day (midnight to midnight) at Mauna Loa, T. H., during the month

SEPTEMBER 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	418	412	410	---	---	---	---	---	---	---	432	342	---	---	351	378	402	360	378	348	---	409	352	315	---	342	285	---	---	403	---	---

Net radiation in langleys per day (midnight to midnight) at Mauna Loa, T. H., during the month

OCTOBER 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	---	---	---	---	---	346	345	---	336	344	335	332	320	282	---	251	---	---	---	---	---	---	---	---	---	---	288	---	336	300	250	---

Net radiation in langleys per day (midnight to midnight) at Mauna Loa, T. H., during the month

NOVEMBER 1958

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	263	300	252	306	269	204	162	304	---	---	---	---	307	277	229	204	191	238	---	332	133	---	194	---	---	204	179	251	204	251	---	---

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

DELAYED DATA

1957	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Manhattan, Kans.	Lemont, Ill.	Manhattan, Kans.	Lemont, Ill.	Manhattan, Kans.	Lemont, Ill.	Manhattan, Kans.	Lemont, Ill.	Manhattan, Kans.	Lemont, Ill.	Manhattan, Kans.	Lemont, Ill.
Jan. 1-----	266	243	304	372	746	751	746	746	757	746	751	746	757	746	751	746	757	746	757	746	757	746	757
Jan. 2-----	248	6 67	6 299	3 99	8 720	640	5 514	689	3 396	689	3 396	689	3 396	689	3 396	689	3 396	689	3 396	689	3 396	689	3 396
Jan. 3-----	130	7 70	7 240	4 76	9 353	416	6 704	619	5 778	413	8 666	623	5 488	512	3 421	427	7 52	47	52	47	52	47	52
Jan. 4-----	180	8 58	8 257	5 124	10 203	222	7 123	619	5 778	730	9 478	596	6 385	243	4 438	411	8 37	286	6 6	41	166	61	166
Jan. 5-----	200	9 69	9 385	6 315	11 110	218	8 380	505	6 658	674	10 170	608	7 455	498	5 417	305	9 191	306	7 46	176	46	176	46
Jan. 6-----	171	10 124	10 259	7 84	12 303	713	9 708	580	6 637	675	11 393	571	8 571	571	6 328	348	10 308	348	8 59	187	159	187	159
Jan. 7-----	272	11 264	11 53	8 195	13 134	300	10 558	419	8 289	599	12 570	564	9 169	408	7 401	119	11 264	133	9 159	187	159	187	159
Average-----	210	128	257	181	367	466	535	555	551	629	525	607	448	471	412	360	191	198	87	167	167	167	167
Jan. 8-----	67	12 219	12 513	9 620	14 532	758	11 400	613	9 776	645	13 521	594	10 338	55	8 331	32	12 194	29	10 53	171	171	171	171
Jan. 9-----	39	13 219	13 483	10 636	15 248	394	12 432	395	10 741	202	14 388	571	11 241	164	9 218	193	13 8	63	11 220	216	216	216	216
Jan. 10-----	296	14 375	14 303	11 368	16 591	31	13 280	704	11 745	666	15 554	605	12 86	527	10 261	346	14 16	207	12 158	132	132	132	132
Jan. 11-----	249	15 102	15 437	12 540	17 199	---	14 197	727	12 170	673	16 398	195	13 509	484	11 281	183	15 89	122	13 187	169	169	169	169
Jan. 12-----	109	16 381	16 537	13 447	18 153	---	15 542	286	13 152	671	17 628	585	14 506	13	12 416	107	16 27	59	14 215	175	175	175	175
Jan. 13-----	144	17 405	17 435	14 712	19 110	---	16 737	614	14 703	633	18 334	487	15 208	396	13 405	140	17 39	30	15 21	139	139	139	139
Jan. 14-----	330	18 413	18 39	15 534	20 319	---	17 684	171	15 654	622	19 613	616	16 559	545	14 241	63	18 6	92	16 143	10	10	10	10
Average-----	176	302	395	551	308	---	468	502	563	587	491	519	349	330	308	152	54	86	142	144	144	144	144
Jan. 15-----	260	19 430	19 92	16 173	21 387	---	18 601	746	16 300	648	20 498	394	17 529	528	15 82	87	19 26	211	17 50	16	16	16	16
Jan. 16-----	316	20 422	20 560	17 108	22 684	486	19 799	743	17 465	652	21 541	423	18 521	499	16 81	393	20 94	277	18 5	71	71	71	71
Jan. 17-----	283	21 304	21 379	18 224	23 226	729	20 763	709	18 705	642	22 590	392	19 363	90	17 78	413	21 161	285	19 191	7	7	7	7
Jan. 18-----	253	22 175	22 387	19 397	24 787	436	21 715	635	19 671	632	23 373	280	20 94	49	18 321	397	22 166	300	20 37	196	196	196	196
Jan. 19-----	266	23 64	23 406	20 426	25 219	554	22 549	727	20 610	517	24 351	622	21 174	510	19 347	249	23 134	262	21 207	158	158	158	158
Jan. 20-----	31	24 193	24 200	21 543	26 599	743	23 816	352	21 683	165	25 635	581	22 269	533	20 393	329	24 253	261	22 185	94	94	94	94
Jan. 21-----	10	25 138	25 69	22 158	27 480	712	24 487	706	22 131	304	26 566	194	23 502	508	21 162	58	25 98	261	23 73	180	180	180	180
Average-----	203	247	298	290	483	610	676	660	509	509	508	412	350	388	209	275	133	267	107	103	103	103	103
Jan. 22-----	20	26 81	26 173	23 403	28 770	507	25 650	575	23 739	391	27 222	307	24 501	508	22 22	45	26 202	260	24 200	70	70	70	70
Jan. 23-----	334	27 417	27 528	24 299	29 652	541	26 505	518	24 738	598	28 152	508	25 455	420	23 28	45	27 198	145	25 1	171	171	171	171
Jan. 24-----	189	28 425	28 373	25 384	30 488	541	27 371	317	25 689	560	29 375	519	26 239	383	24 125	61	28 40	287	26 27	182	182	182	182
Jan. 25-----	205	29 436	29 495	26 232	31 312	451	28 385	728	26 403	382	30 520	489	27 497	465	25 204	244	29 124	137	27 149	94	94	94	94
Jan. 26-----	230	30 425	30 498	27 252	31 619	306	29 802	539	27 558	662	31 546	540	28 486	467	26 153	62	30 240	274	28 225	201	201	201	201
Jan. 27-----	234	31 481	31 276	28 340	32 817	728	30 818	545	28 595	583	32 436	586	29 481	475	27 352	370	31 225	253	29 86	150	150	150	150
Jan. 28-----	103	4 440	Apr. 1	29 713	3 812	664	Jul. 1	698	499	29 392	551	2	351	597	28 354	340	2 145	122	30 166	10	10	10	10
Average-----	188	386	355	375	639	534	604	503	588	532	372	492	442	454	177	167	168	211	109	134	134	134	134
Jan. 29-----	314	30	May 1	30 675	393	---	---	---	30	500	585	---	---	---	29	186	272	---	---	---	---	---	---
Jan. 30-----	288	May 1	30 676	705	---	---	---	---	31	603	629	---	---	---	30	153	342	---	---	---	---	---	---
Jan. 31-----	194	2 693	231	308	Aug. 1	---	---	---	31	607	607	---	---	---	31	146	235	---	---	---	---	---	---
Feb. 1-----	193	3 779	308	---	2 561	607	---	---	2	610	607	---	---	---	Nov. 1	223	162	---	---	---	---	---	---
Feb. 2-----	150	4 741	829	---	3 230	436	---	---	3	666	633	---	---	---	2	110	177	---	---	---	---	---	---
Feb. 3-----	87	5 772	808	---	4 666	633	---	---	4	607	637	---	---	---	3	95	42	---	---	---	---	---	---
Feb. 4-----	363	6 759	789	---	5 728	581	---	---	5	543	594	---	---	---	4	140	192	---	---	---	---	---	---
Average-----	227	728	581	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

DELATED DATA

1958	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Saville, N. Y.	Lexington, Ky.	Lexington, Ky.	Manhattan, Kans.	Newport, R. I.	Resolute, N.W.T.	Aklavik, Mackenzie	Dartmouth, N. S.	Edmonton, Alberta
Jan. 1-----	258	104	81	413	441	689	713	794	890	727	890	617	216	306	558	475
Jan. 2-----	226	6 197	6 429	315	399	690	713	805	899	759	899	465	162	3	119	561
Jan. 3-----	263	7 337	7 136	500	352	690	713	805	899	759	899	465	162	4	119	561
Jan. 4-----	219	8 351	8 354	500	352	690	713	805	899	759	899	465	162	5	265	268
Jan. 5-----	116	9 360	9 362	500	352	690	713	805	899	759	899	465	162	6	277	448
Jan. 6-----	201	10 382	10 249	500	352	690	713	805	899	759	899	465	162	7	160	138
Jan. 7-----	223	11 373	11 304	500	352	690	713	805	899	759	899	465	162	8	215	338
Average-----	215	301	274	347	413	654	631	450	(599)	711	881	552	541	12	524	473
Jan. 8-----	145	12 365	12 474	94	436	651	515	387	728	9	537	886	---	13	571	332
Jan. 9-----	229	13 377	13 342	285	15 569	415	515	417	12 506	552	776	14 463	702	14	463	702
Jan. 10-----	236	14 204	14 88	643	16 603	631	587	483	13 707	743	11 737	870	311	15	500	425
Jan. 11-----	230	15 385	15 151	470	17 605	535	669	442	14 137	761	12 746	865	415	16	590	301
Jan. 12-----	209	16 406	16 108	532	18 568	673	778	358	15 644	761	13 744	828	415	17	496	---
Jan. 13-----	178	17 409	17 217	308	19 601	638	759	547	16 602	733	14 750	870	706	18	581	744
Jan. 14-----	219	18 370	18 258	656	20 619	715	667	490	17 725	744	15 735	883	580	19	548	627
Average-----	207	359	234	427	572	608	641	446	578	717	699	868	496	20	536	522
Jan. 15-----	113	19 397	19 152	625	21 625	715	731	630	18 514	760	16 720	863	403	21	416	727
Jan. 16-----	57	20 402	20 309	439	22 655	405	543	654	19 560	729	17 475	877	498	22	570	498
Jan. 17-----	104	21 76	21 271	255	23 466	727	244	639	20 643	735	18 484	869	383	23	493	542
Jan. 18-----	238	22 261	22 349	477	24 642	662	551	690	21 685	595	19 624	862	464	24	462	439
Jan. 19-----	143	23 383	23 433	698	25 354	666	747	634	22 601	568	20 719	806	462	25	412	187
Jan. 20-----	45	24 202	24 155	432	26 447	698	704	630	23 677	661	21 699	740	502	26	571	(660)
Jan. 21-----	19	25 397	25 497	530	27 327	516	467	624	24 175	721	22 715	588	414	27	418	718
Average-----	103	303	309	494	(502)	627	569	643	551	681	634	801	446	28	435	(539)
Jan. 22-----	221	26 218	26 496	542	28 345	691	712	733	25 656	313	23 711	833	412	29	487	714
Jan. 23-----	237	27 52	27 298	632	29 629	714	699	511	26 747	374	24 693	830	591	30	503	503
Jan. 24-----	62	28 67	28 221	637	30 652	568	699	556	27 735	257	25 694	837	435	31	307	676
Jan. 25-----	183	29 95	29 423	445	31 312	408	549	481	28 725	290	26 705	827	498	32	443	673
Jan. 26-----	83	30 136	30 438	296	32 387	226	679	541	29 732	574	27 686	816	663	33	460	557
Jan. 27-----	149	3 2	31 510	541	2 669	405	512	507	30 699	699	28 690	816	496	34	440	691
Jan. 28-----	189	4 109	April 464	702	3 482	571	585	622	31 679	643	29 689	789	717	35	456	633
Average-----	156	110	407	542	525	512	623	565	710	450	695	822	545	36	445	(409)
Jan. 29-----	169	30 690	30 690	569	31 712	817	661	611	30 703	761	31 712	817	661	37	487	714
Jan. 30-----	181	May 1 623	May 1 623	652	32 693	783	366	592	32 693	783	366	592	366	38	485	669
Jan. 31-----	230	2 168	2 168	205	33 712	817	351	486	33 712	817	351	486	351	39	503	503
Feb. 1-----	231	3 304	3 304	141	34 693	778	247	645	34 693	778	247	645	247	40	503	503
Feb. 2-----	269	4 272	4 272	193	35 547	820	---	---	35 547	820	---	---	---	41	460	557
Feb. 3-----	344	5 379	5 379	750	36 547	820	---	---	36 547	820	---	---	---	42	460	557
Feb. 4-----	329	6 677	6 677	734	37 547	820	---	---	37 547	820	---	---	---	43	460	557
Average-----	259	445	445	464	38 547	820	---	---	38 547	820	---	---	---	44	460	557

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

DELAYED DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1958	Lemont, Ill.	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Resolute, N.W.T.	Saville, N. Y.	Toronto, Ontario	Winnipeg, Manitoba	Oct.	Aklavik, MacKenzie	Dartmouth, N. S.	Edmonton, Alberta	Inykern, Calif.	Lemont, Ill.	Manhattan, Kans.	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Resolute, N.W.T.	Saville, N. Y.	Seattle, Wash.	Toronto, Ontario	Winnipeg, Manitoba	Nov.	Lexington, Ky.	
Sep. 3-----	346	98	461	529	111	658	387	291	1	72	156	245	578	444	502	170	260	(321)	91	46	369	415	253	108	125	
Sep. 4-----	453	351	527	166	75	579	198	437	2	68	373	197	606	415	389	152	215	374	59	502	365	400	256	322	372	
Sep. 5-----	213	412	467	542	65	469	478	171	3	75	353	320	599	368	415	78	221	281	101	273	353	374	219	270	363	
Sep. 6-----	270	348	120	74	184	282	296	278	4	53	326	218	525	431	469	29	175	329	100	374	320	368	277	7	74	178
Sep. 7-----	555	347	122	160	65	420	262	515	5	86	405	210	569	408	434	257	302	376	84	441	290	384	287	8	211	135
Sep. 8-----	576	344	337	469	120	368	550	487	6	60	422	102	528	398	350	55	277	375	32	538	65	385	264	9	299	188
Sep. 9-----	503	91	333	372	59	648	238	392	7	119	396	225	548	189	350	304	81	243	36	510	80	350	179	11	258	378
Average-----	417	284	272	330	97	489	344	367	76	347	347	217	565	379	424	149	219	(329)	72	383	263	384	248	220	248	
Sep. 10-----	529	424	259	299	133	162	337	430	8	111	391	101	539	64	436	167	30	170	38	313	255	78	236	12	187	359
Sep. 11-----	361	250	267	383	(116)	563	540	454	9	122	128	131	555	320	441	292	108	224	30	407	---	206	42	13	49	328
Sep. 12-----	526	132	308	387	94	545	411	446	10	112	200	147	537	436	453	90	75	55	36	416	21	196	104	14	207	197
Sep. 13-----	531	406	415	243	114	565	399	122	11	109	311	90	537	436	407	79	115	167	47	424	232	218	204	15	39	216
Sep. 14-----	475	73	295	267	63	534	419	333	12	48	264	149	532	377	404	88	168	185	27	503	43	246	286	16	54	167
Sep. 15-----	325	81	139	272	60	594	417	163	13	44	136	200	522	388	407	129	85	350	28	114	287	234	304	17	55	322
Sep. 16-----	300	309	299	333	27	551	232	199	14	80	305	169	515	370	346	164	45	204	22	318	188	98	194	18	211	47
Average-----	435	239	250	312	(87)	502	393	307	89	248	173	535	535	342	413	144	88	193	37	366	166	195	196	115	237	
Sep. 17-----	52	349	409	210	147	87	75	429	15	32	234	254	519	359	403	99	205	298	27	266	61	45	234	19	267	359
Sep. 18-----	480	422	360	75	118	164	308	337	16	43	105	206	459	340	409	92	119	104	17	371	201	154	265	20	156	348
Sep. 19-----	337	202	362	221	109	344	380	332	17	44	108	251	488	384	401	78	218	268	21	394	114	352	282	21	109	316
Sep. 20-----	419	238	355	166	143	113	444	304	18	18	162	195	417	361	400	131	195	216	17	439	104	326	225	22	241	332
Sep. 21-----	356	172	347	(185)	171	107	85	427	19	24	279	235	509	352	394	236	239	332	15	339	199	336	267	23	222	272
Sep. 22-----	499	388	216	437	163	494	468	342	20	33	333	242	485	358	274	75	305	313	6	446	267	334	250	24	141	246
Sep. 23-----	309	315	384	442	163	571	455	89	21	33	252	220	538	261	322	144	155	303	9	312	275	305	243	25	9	217
Average-----	350	298	339	(248)	145	269	316	323	31	210	229	488	488	345	372	122	205	262	16	367	174	265	252	164	299	
Sep. 24-----	281	198	353	236	57	452	157	68	22	67	331	226	495	82	386	128	234	252	12	174	85	67	120	26	249	277
Sep. 25-----	181	171	209	167	75	469	151	177	23	65	314	109	242	334	397	49	98	37	19	138	213	59	168	27	255	263
Sep. 26-----	368	350	380	446	77	446	397	269	24	53	52	219	352	256	384	178	45	27	12	174	265	126	119	28	109	23
Sep. 27-----	459	295	226	(172)	62	56	209	321	25	29	333	140	359	57	363	237	257	29	11	36	254	83	32	30	232	315
Sep. 28-----	477	116	360	(389)	53	412	404	128	26	27	255	212	407	48	281	295	257	173	12	117	201	267	78	30	228	312
Sep. 29-----	465	251	372	(362)	94	555	389	73	27	40	42	168	450	330	342	37	254	97	4	104	191	113	230	Dec 1	155	555
Sep. 30-----	174	66	138	(136)	106	246	87	293	28	21	50	186	459	325	414	139	(207)	41	8	47	156	82	218	2	195	527
Average-----	344	207	291	(273)	75	377	256	190	43	197	180	395	395	205	364	142	(193)	94	11	113	195	114	138	204	239	

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

DESCRIPTION of CHARTS

CHART I..A. AVERAGE TEMPERATURE (°F.) AT SURFACE. B. DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL.-The average monthly temperature presented in Chart I-A is computed from the average daily maximum and the average daily minimum which in turn are computed from the daily maximum and minimum temperatures reported by some 225 first-order Weather Bureau stations and 700 cooperative stations. The departures from normal are presented in Chart I-B. They are based on the 30-year normals (1921-50) for the first-order Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for the cooperative stations.

CHART II. TOTAL PRECIPITATION.-

CHART III. A. DEPARTURE OF PRECIPITATION FROM NORMAL (INCHES). B. PERCENTAGE OF NORMAL PRECIPITATION.-Chart II is based on daily precipitation records at about 800 Weather Bureau and cooperative stations. In Chart III the anomaly in the month's precipitation is shown as a departure from the normal total and as a percentage of the normal total. These anomalies show the deviations from the 30-year normals (1921-50) for about 225 first-order Weather Bureau stations in Charts III A and B, supplemented in Chart III-A by the deviation from means of 25 years or more (mostly 1931-55) for about 700 cooperative stations.

CHART IV. TOTAL SNOWFALL.-

CHART V. A. PERCENTAGE OF NORMAL SNOWFALL. B. DEPTH OF SNOW ON GROUND.-Chart IV gives the total depth in inches of unmelted snowfall as reported during the month by Weather Bureau and cooperative stations. This is converted in Chart V-A into a percentage of the normal total amount computed for each Weather Bureau station having at least 10 years of record. The depth of snow on ground is that reported by both Weather Bureau and cooperative stations as of 7:00a.m. Eastern Standard Time on the last Monday of the month. This is reported only for the months December through April. The snowfall charts are presented each month November through April.

CHART VI. A. PERCENTAGE OF SKY COVER BETWEEN SUNRISE AND SUNSET. B. PERCENTAGE OF NORMAL SKY COVER BETWEEN SUNRISE AND SUNSET.-These charts are based on visual observations made hourly at Weather Bureau stations and averaged for the month. Sky cover includes, in addition to cloudiness, obscuration of the sky by fog, smoke, etc. Normal amount of sky cover is computed for stations having at least 10 years of record.

CHART VII. A. PERCENTAGE OF POSSIBLE SUNSHINE. B. PERCENTAGE OF NORMAL SUNSHINE.-Chart VII-A shows the amount of sunshine received in terms of percentage of the total hours of sunshine possible during the month. In Chart VII-B this is shown as a percentage of the normal number of hours of

sunshine received. Normals are computed for Weather Bureau stations having at least 10 years of record.

CHART VIII. AVERAGE DAILY VALUES OF SOLAR RADIATION, DIRECT AND DIFFUSE.-Plotted on the chart are the monthly means of daily total solar radiation, both direct and diffuse, in langleys (gm. cal. cm.⁻²) for all Weather Bureau stations which record this element. Supplementary data for which limits of accuracy are wider than for those data shown are drawn upon in making the analysis. The inset shows the percentages of the mean based on the period 1951-55.

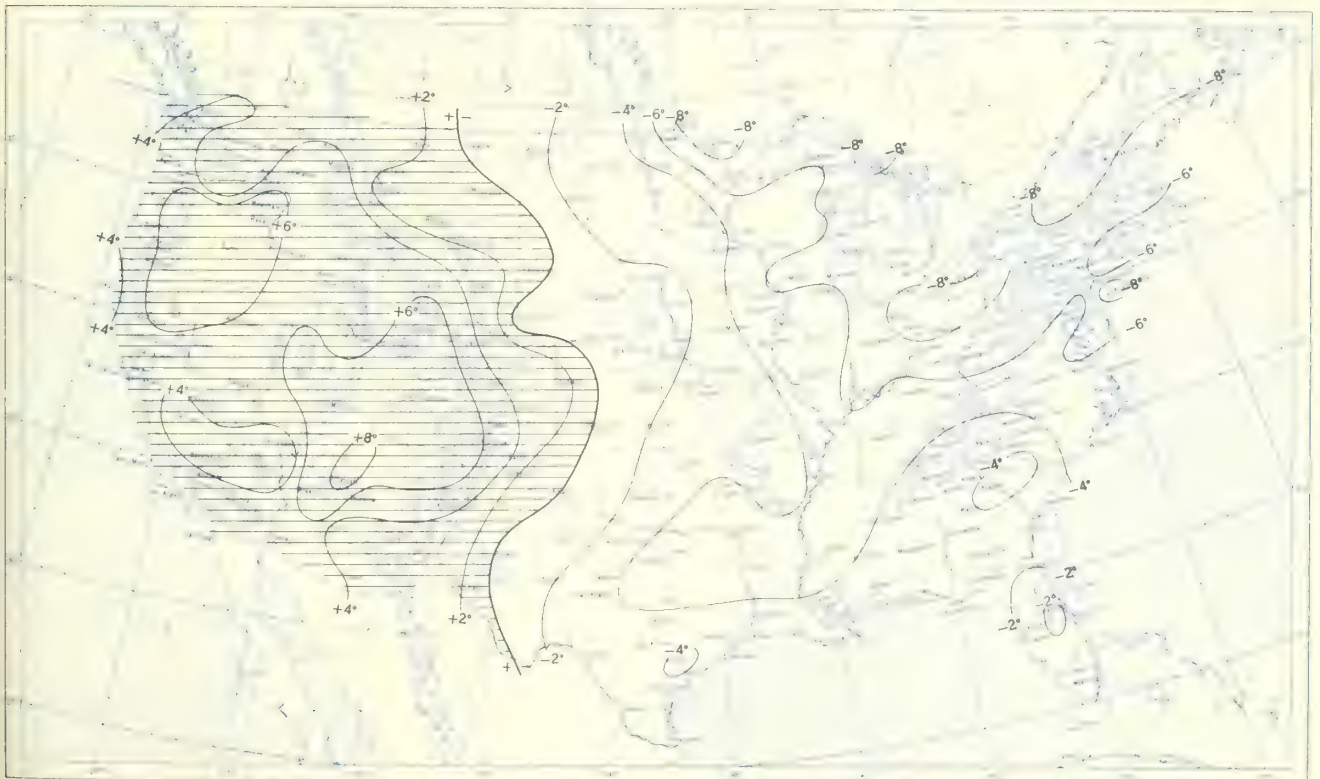
CHART IX.-TRACKS OF CENTERS OF ANTICYCLONES AT SEA LEVEL.-

CHART X. TRACKS OF CENTERS OF CYCLONES AT SEA LEVEL.-Centers which can be identified for 24 hours or more are tracked in these charts. Semi-permanent features such as the Great Basin and Pacific Highs and Colorado and Mexico Lows are not shown. The 7:00 a.m. EST positions are shown by open circles, with the intermediate positions at 6-hour intervals shown by solid dots. The date is given above the circle and the central pressure to whole millibars below. A dashed track indicates a regeneration rather than actual movement to the next position. Solid squares indicate position of stationary center for period shown beside it.

CHART XI. AVERAGE SEA LEVEL PRESSURE (mb.) AND SURFACE WINDROSES.-The average monthly sea level pressure is obtained from the averages of the 7:00 a.m. and 7:00 p.m. EST pressures reported at Weather Bureau stations. Windroses are based on the hourly wind directions (to 16 points of the compass) reported by Weather Bureau stations, each circle or arc indicating 5 percent of the time. The inset shows the departure of the average pressure from the normal average computed for each station having at least 10 years of record and for each 10° intersection in a diamond grid over the oceans from interpolated values read from the Historical Weather Maps for the 20 years of best coverage prior to 1940.

CHARTS XII-XVII. AVERAGE HEIGHT, TEMPERATURE, AND RESULTANT WINDS, 850, 700, 500, 300, 200, and 100 mb.-Height is given in geopotential meters and temperature in degrees Celsius. These are the averages of the 1200 GMT radiosonde reports. Wind speeds are given in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. Directions are shown to 360° of the compass. Winds are based on rawins at the indicated pressure surface and at 1200 GMT.

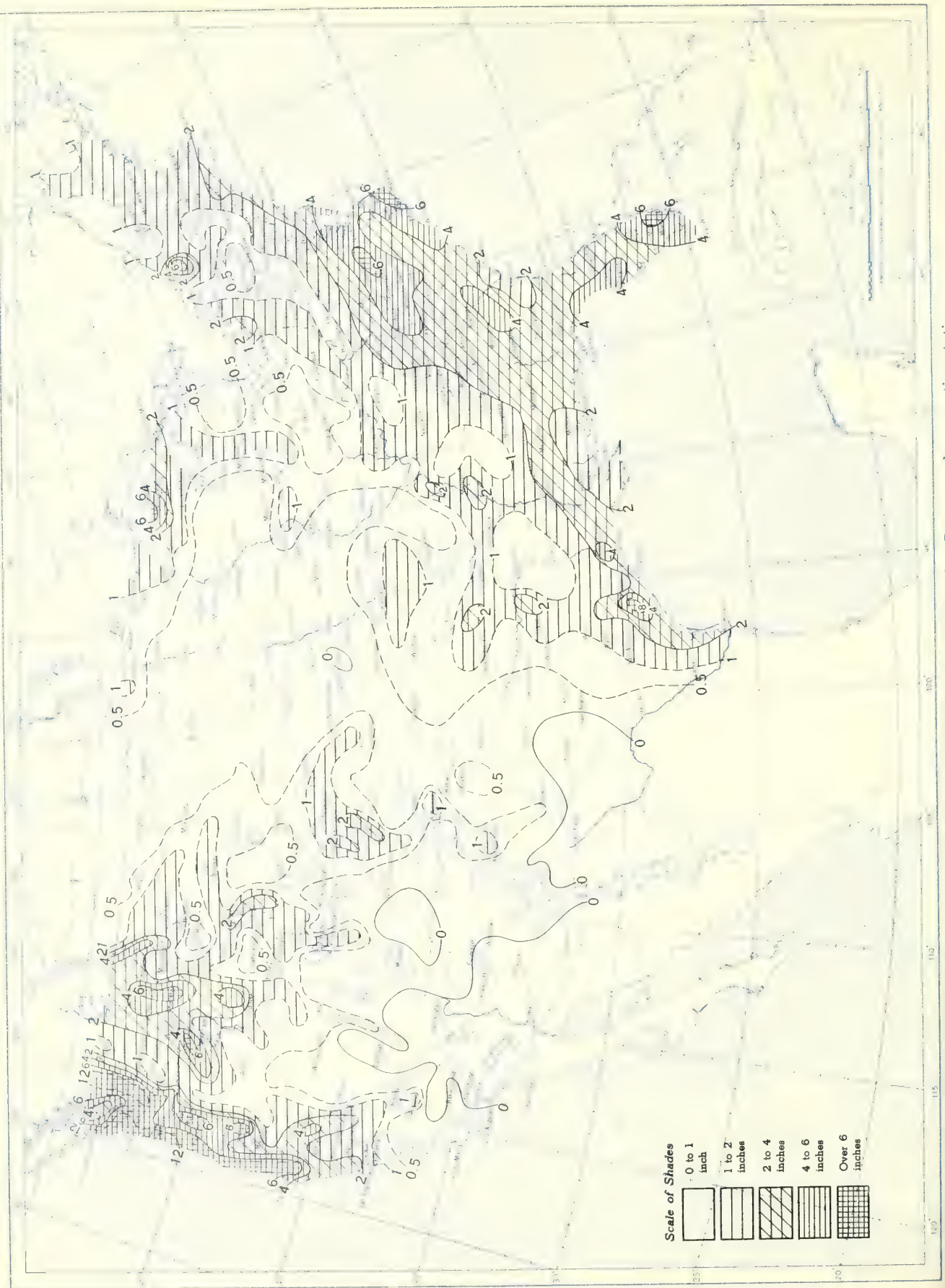
Tabulations of exact values of most of these charted elements for Weather Bureau stations are printed each month in tabular form in CLIMATOLOGICAL DATA, NATIONAL SUMMARY, and annual averages are presented in the CDNS Annual Issue each year.

Chart I. A. Average Temperature ($^{\circ}\text{F.}$) at Surface, December 1958.B. Departure of Average Temperature from Normal ($^{\circ}\text{F.}$), December 1958.

A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

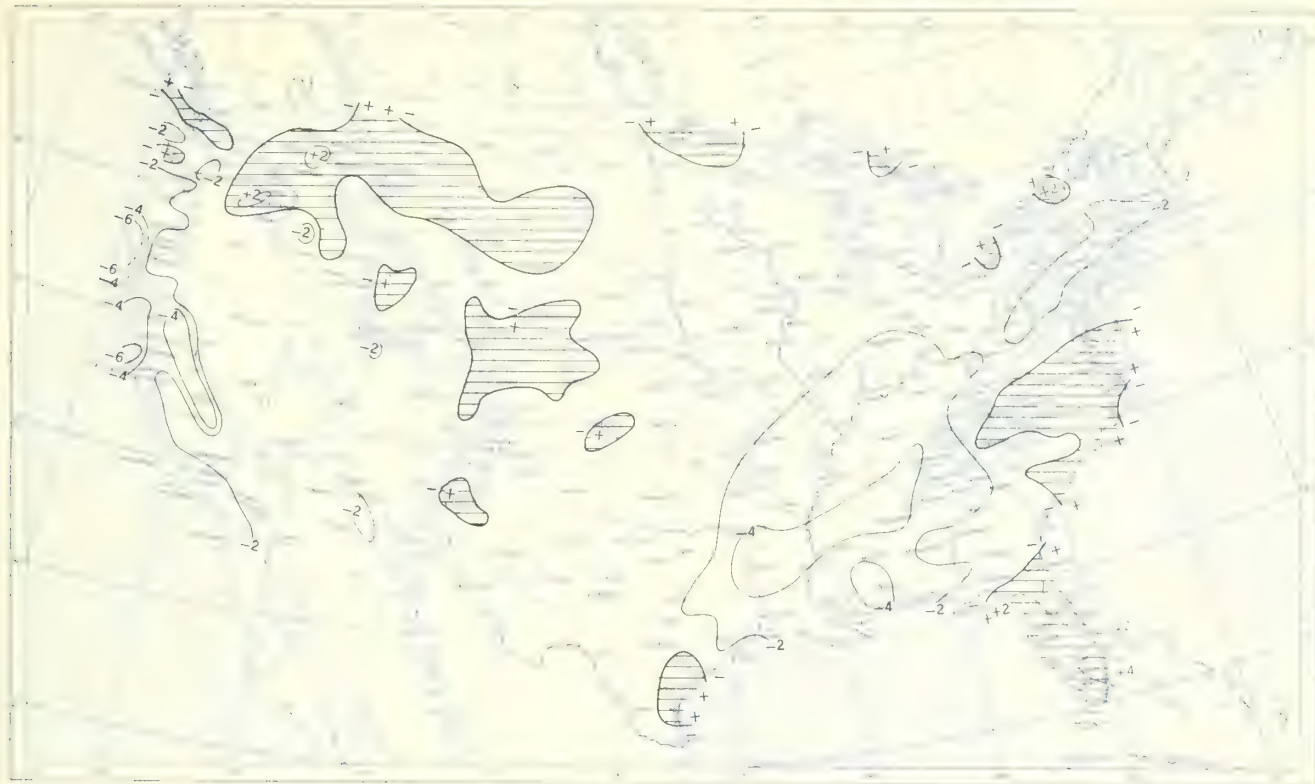
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), December 1958.



Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), December 1958.

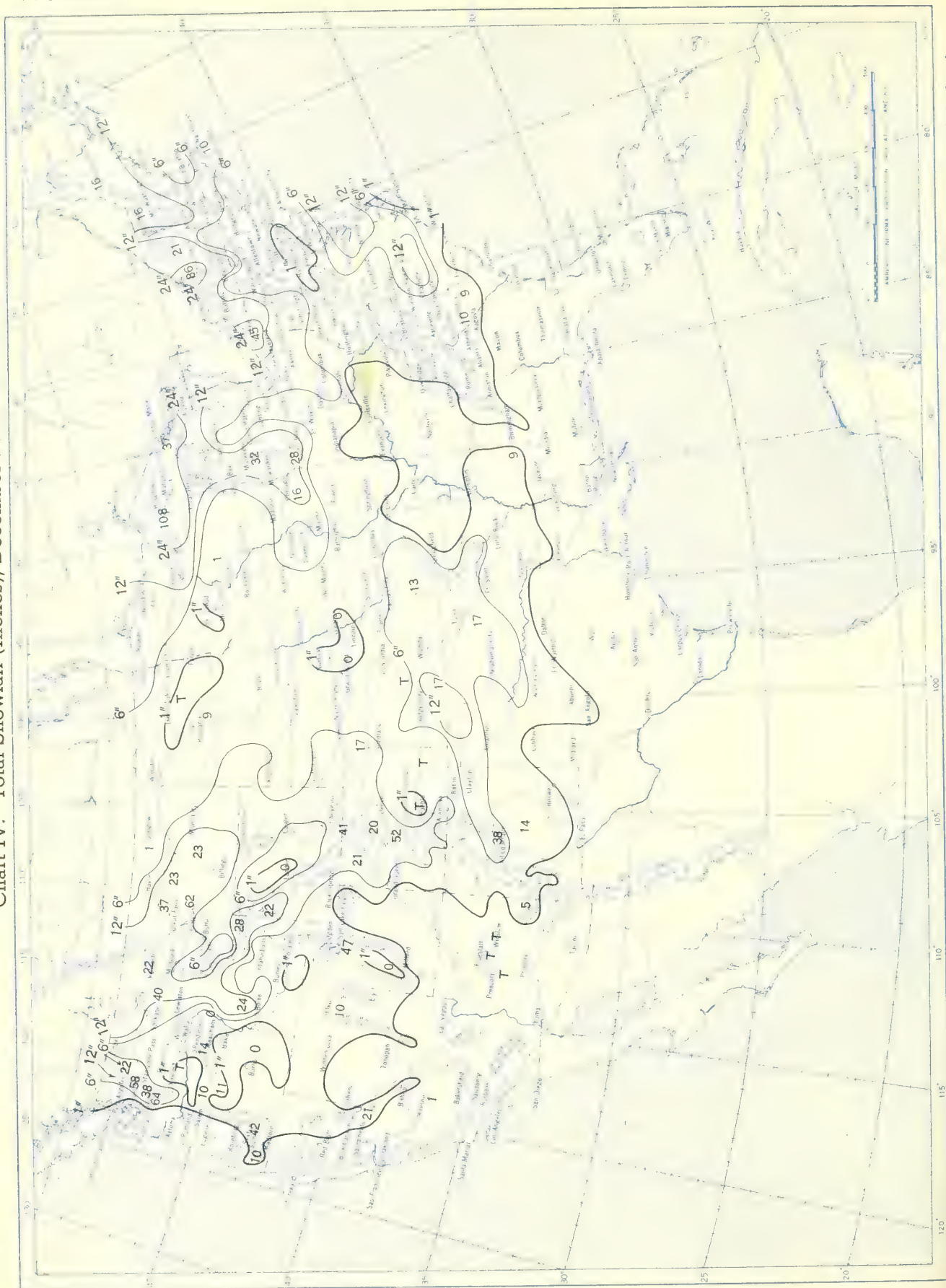


B. Percentage of Normal Precipitation, December 1958.



Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), December 1958.

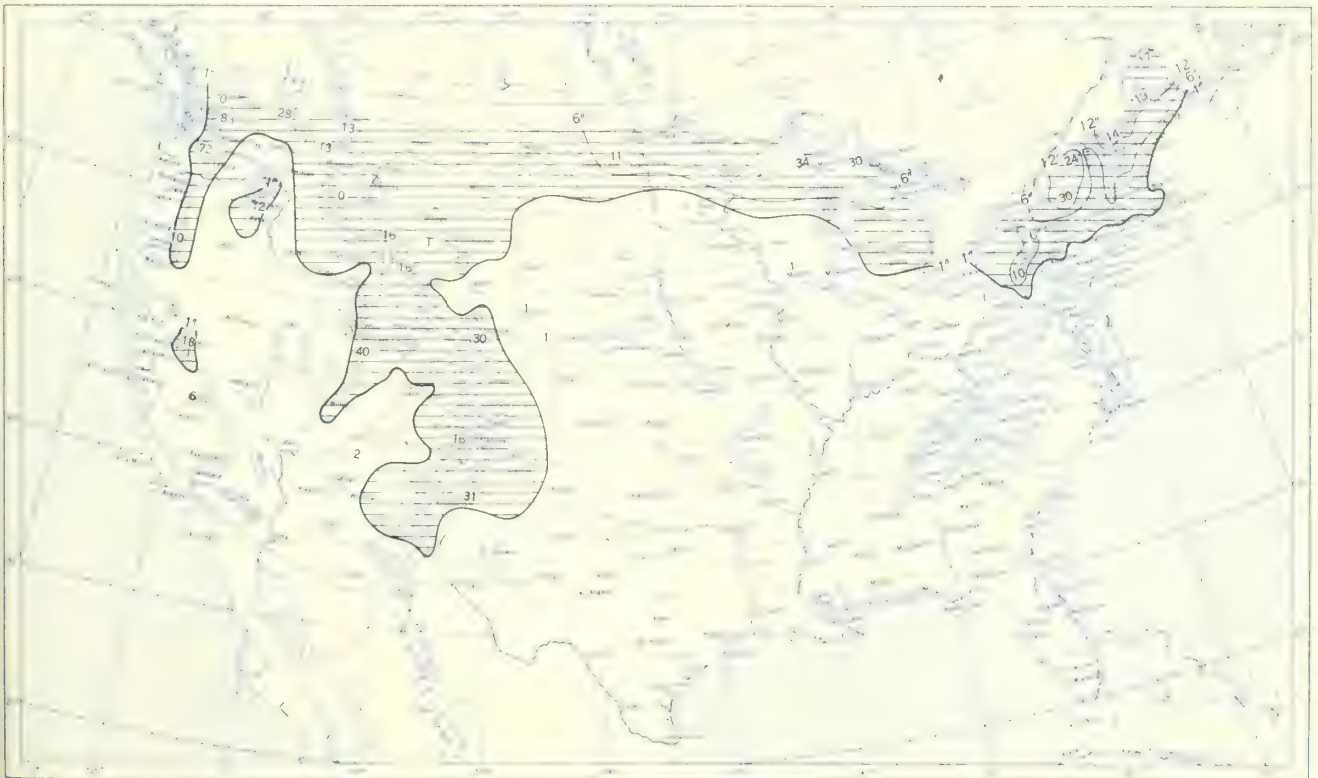


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, December 1958.

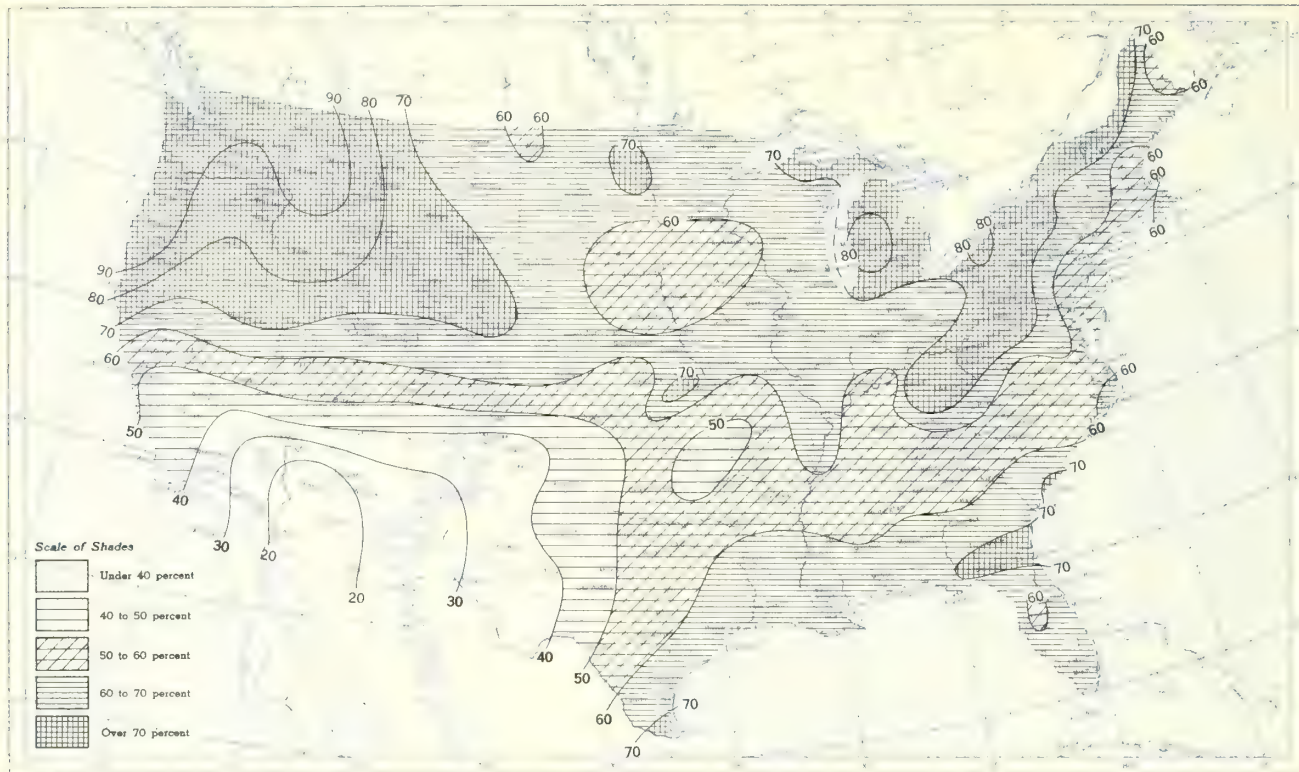


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., December 29, 1958.



A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
 B. Shows depth currently on ground at 7:00 a. m. E. S. T., of the Monday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, December 1958.

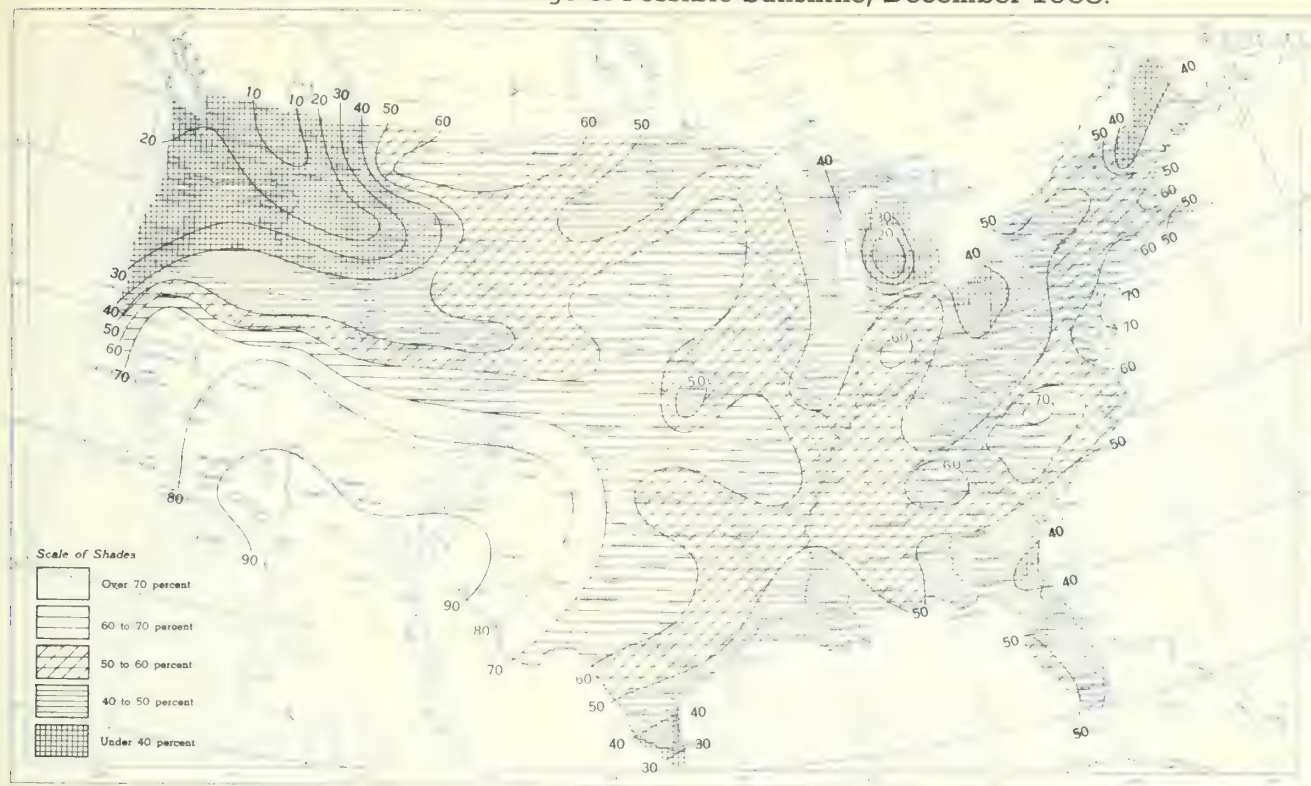


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, December 1958.



A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, December 1958.



B. Percentage of Normal Sunshine, December 1958.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, December 1958. Inset: Percentage of Mean Daily Solar Radiation, December 1958. (Mean based on period 1951-55.)

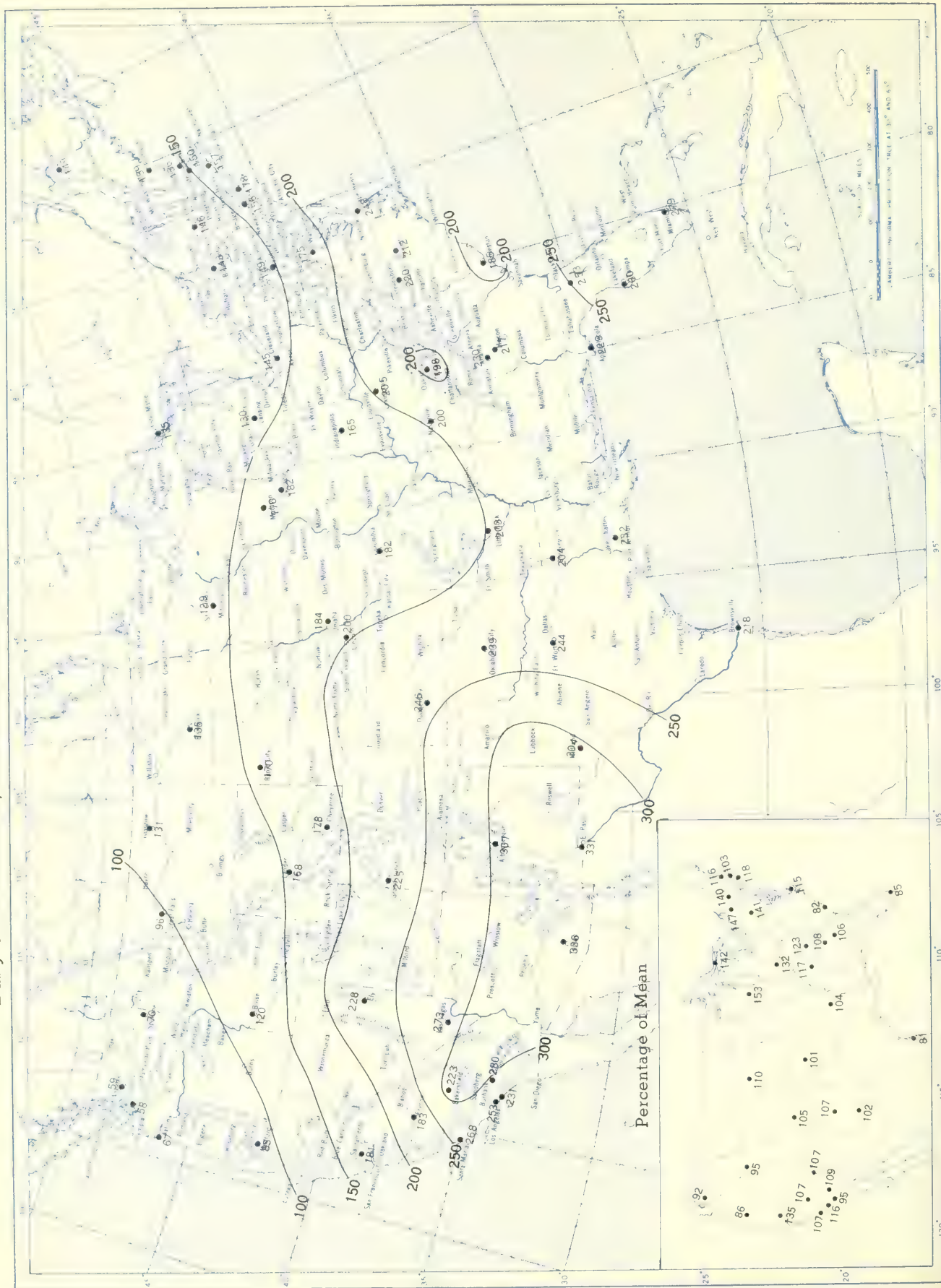
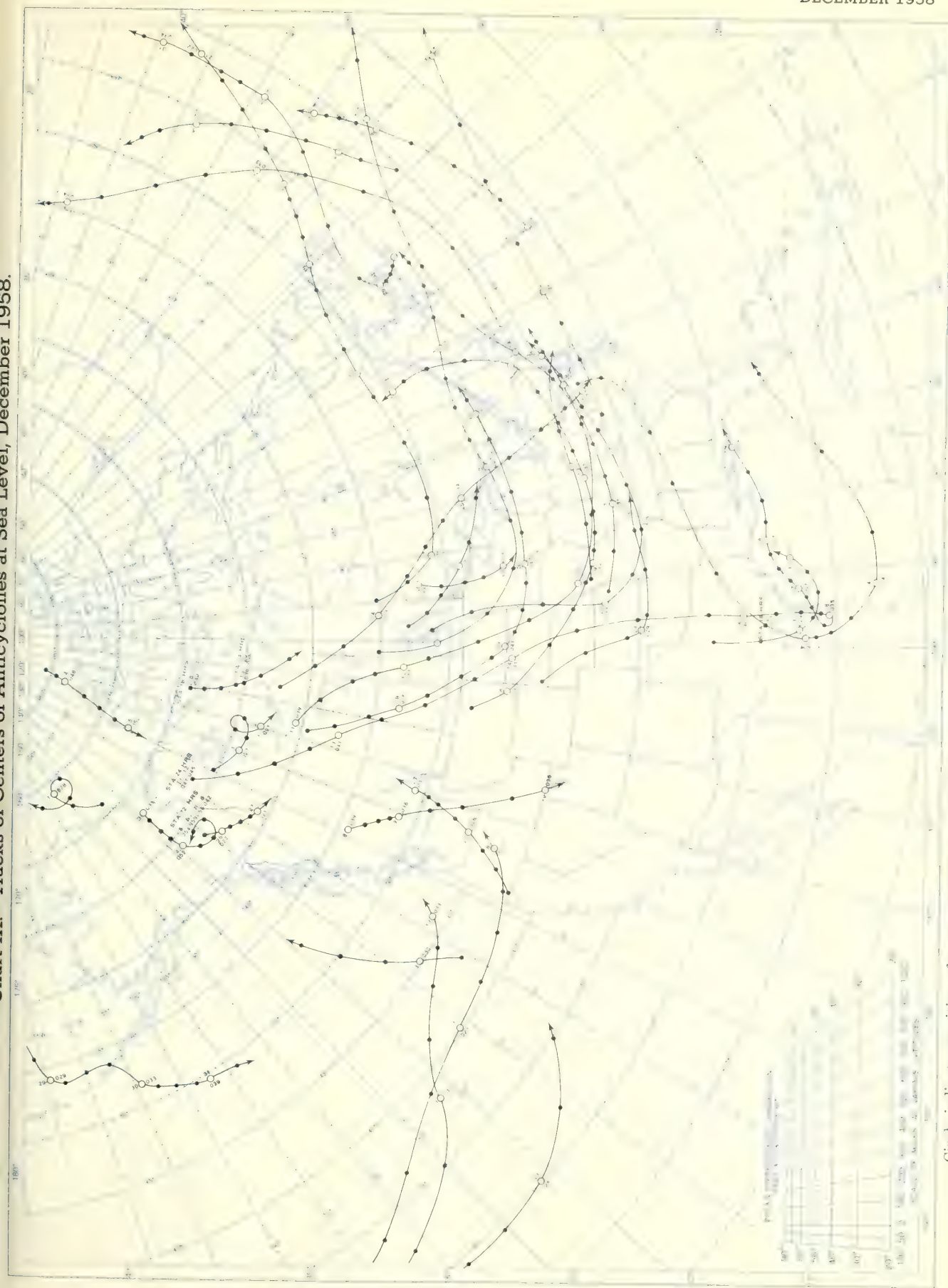
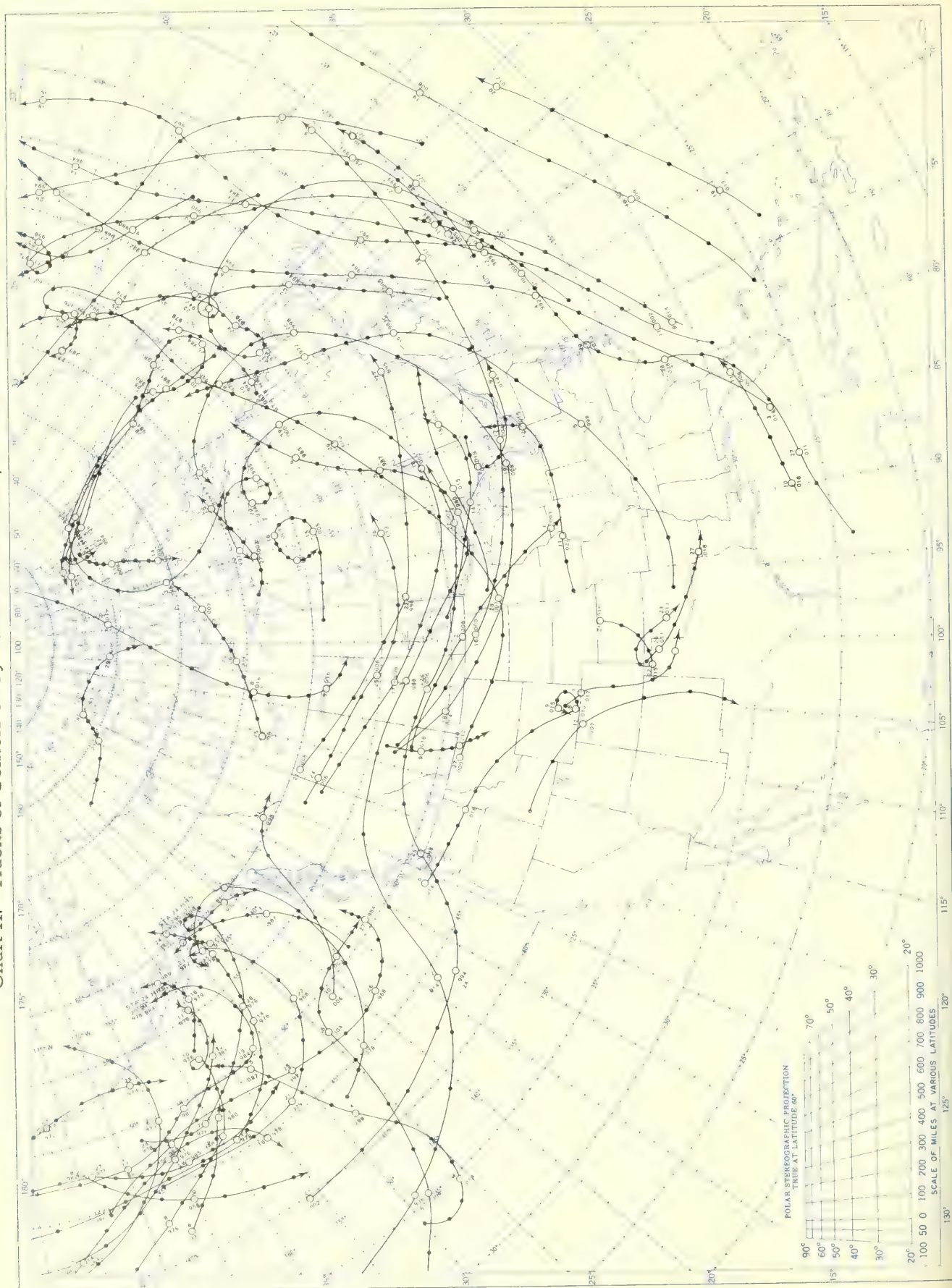


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley (1 langley = 1 gm. cal. cm.⁻²). Basic data for isotherms are shown as dots. Isotherms are drawn from supplementary data for which limits of accuracy are wider than for those data shown. The inset shows the percentage of mean solar radiation for the same period (1951-55).



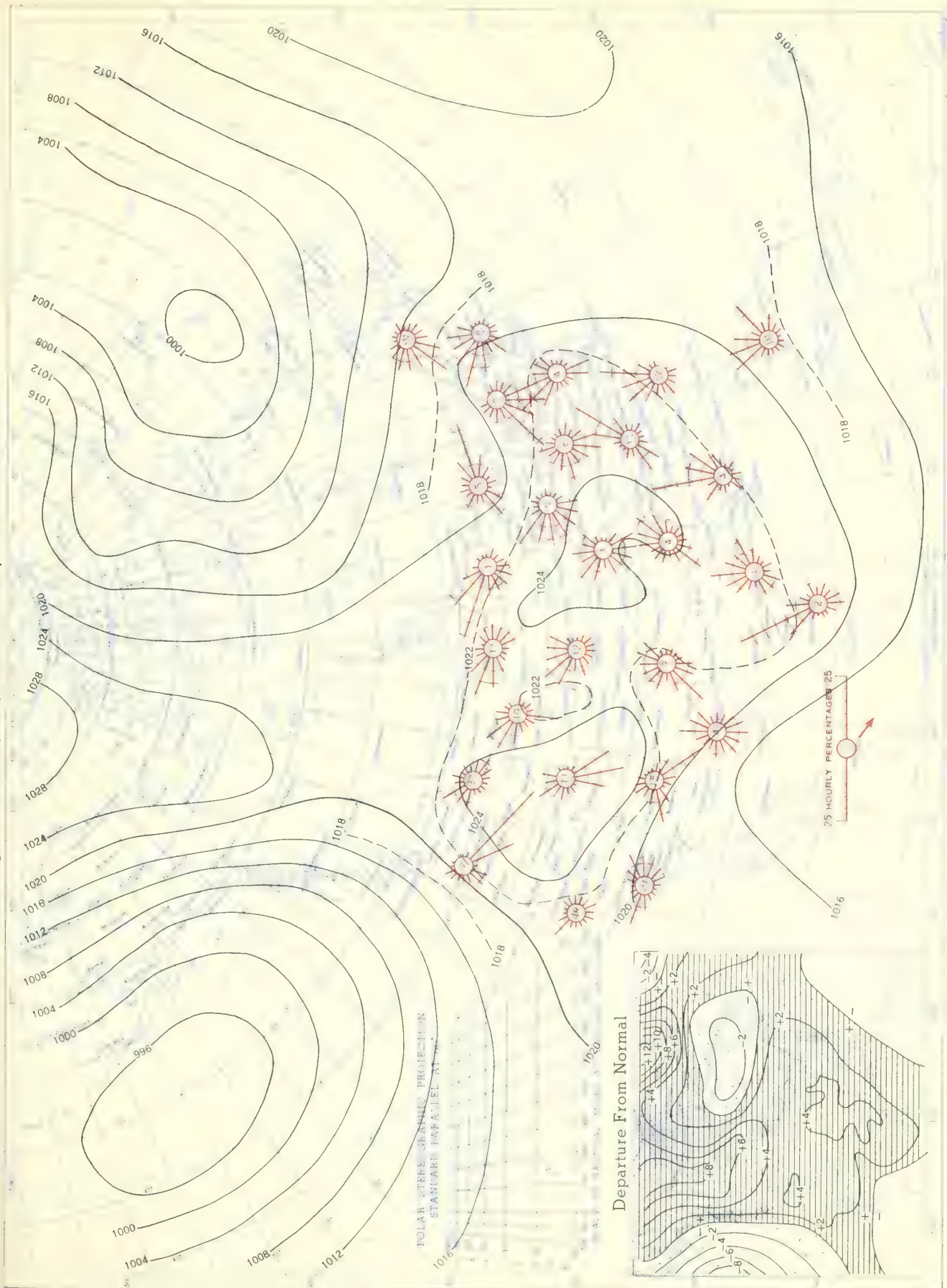
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar.
 Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track
 indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, December 1958.



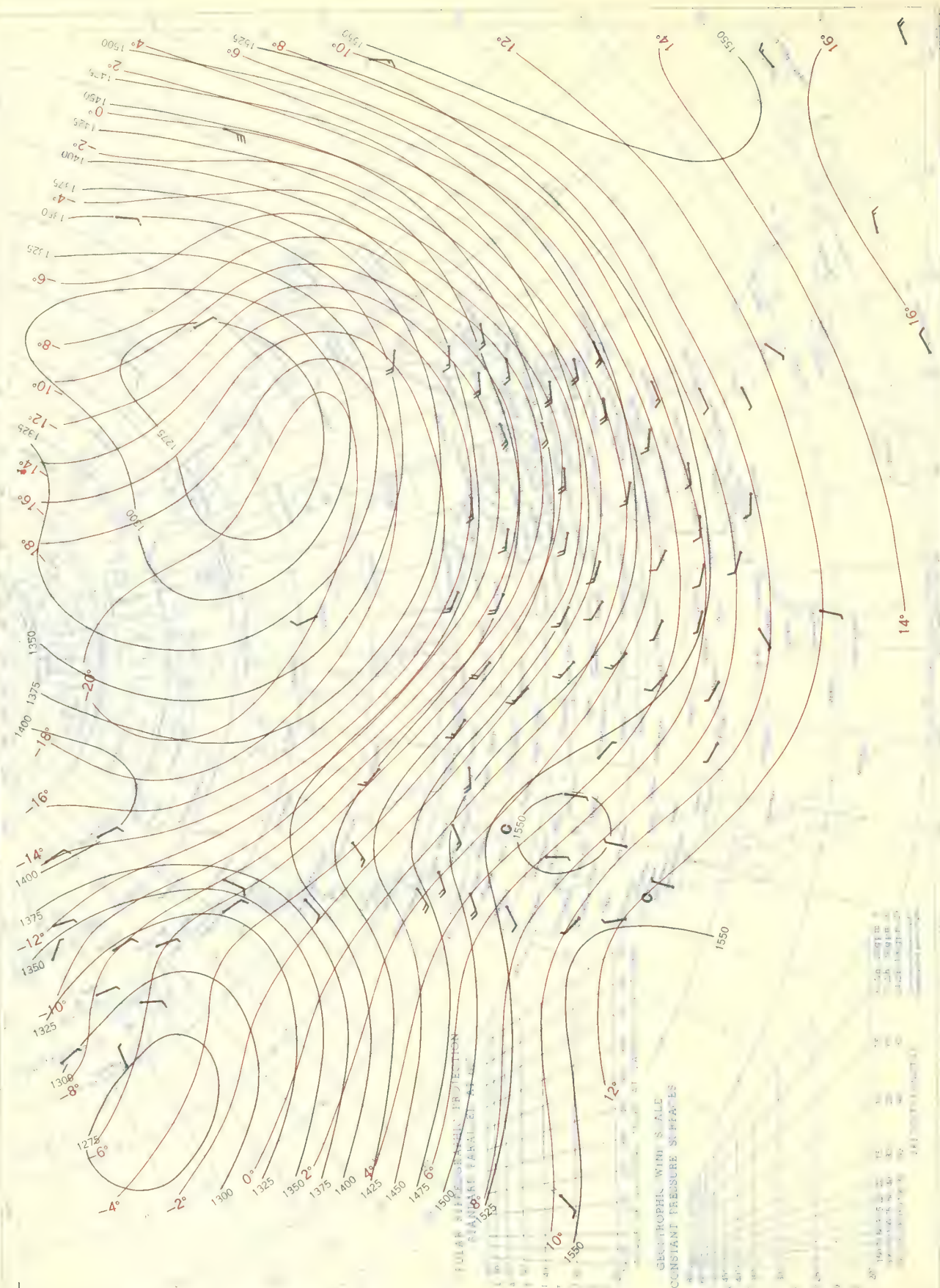
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Average Sea Level Pressure (mb.) and Surface Windroses, December 1958. Inset: Departure of Average Pressure (mb.) from Normal, December 1958.



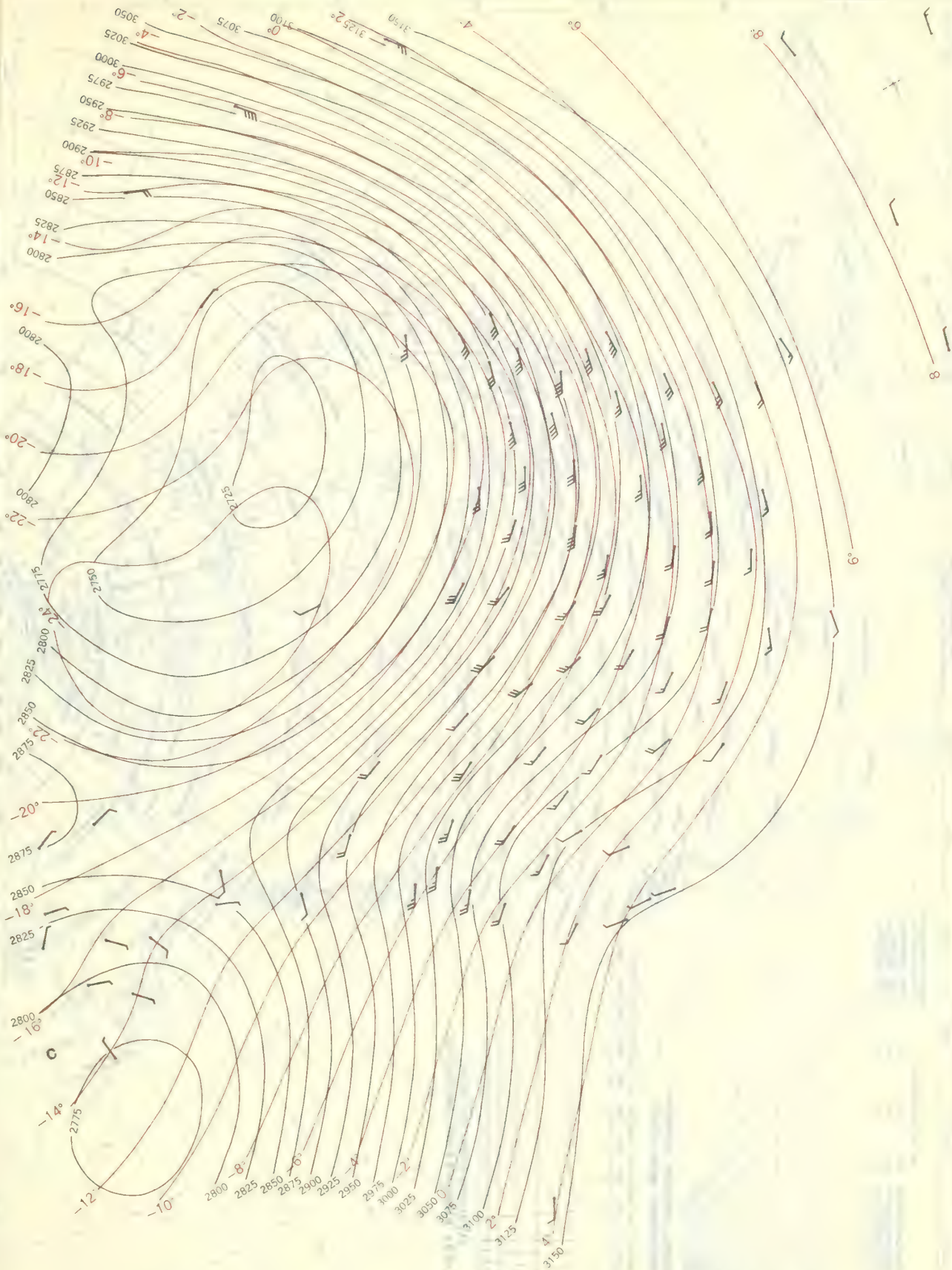
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, December 1958. Average Height and Temperature, and Resultant Winds.



Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents all wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, December 1958. Average Height and Temperature, and Resultant Winds.



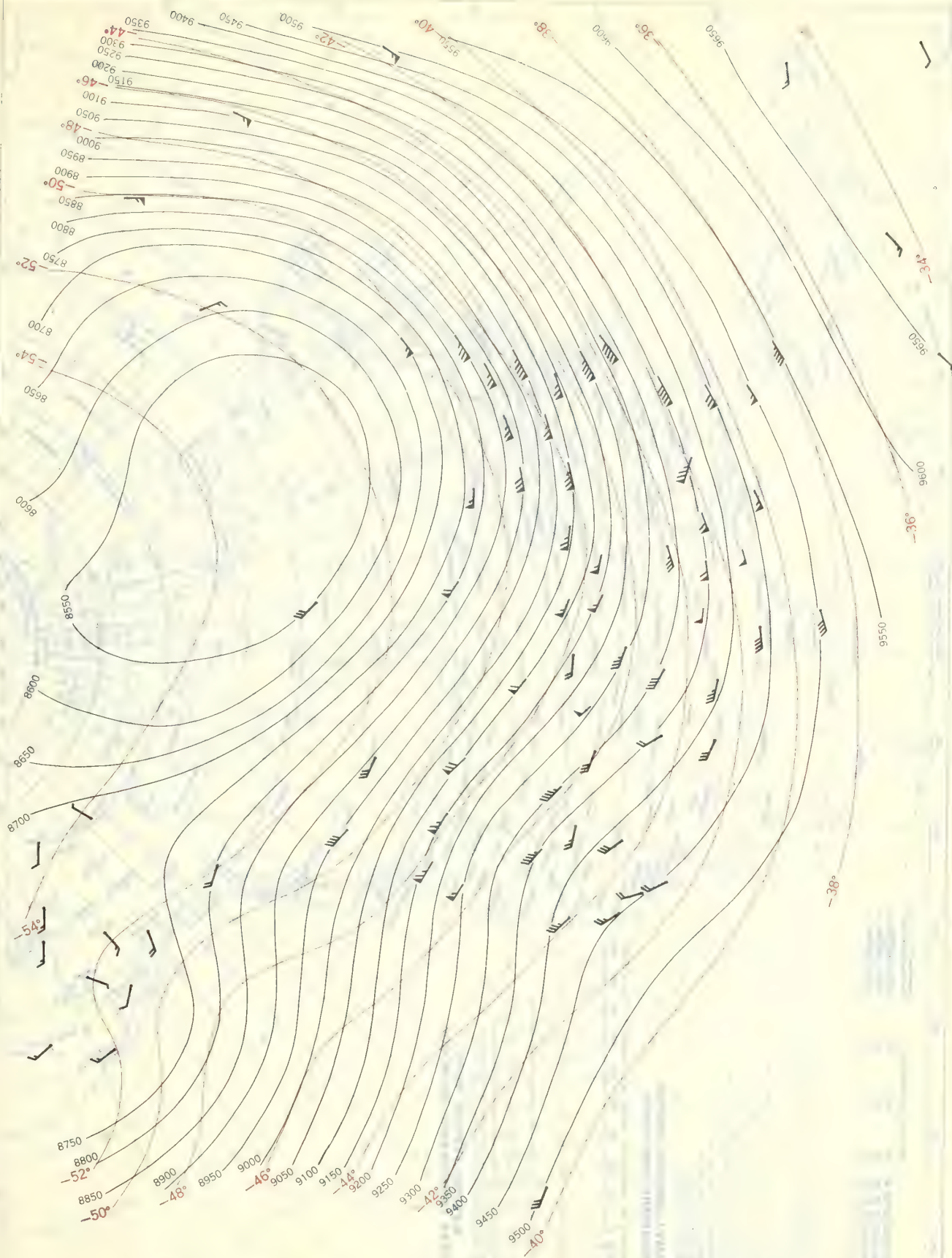
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, December 1958. Average Height and Temperature, and Resultant Winds.



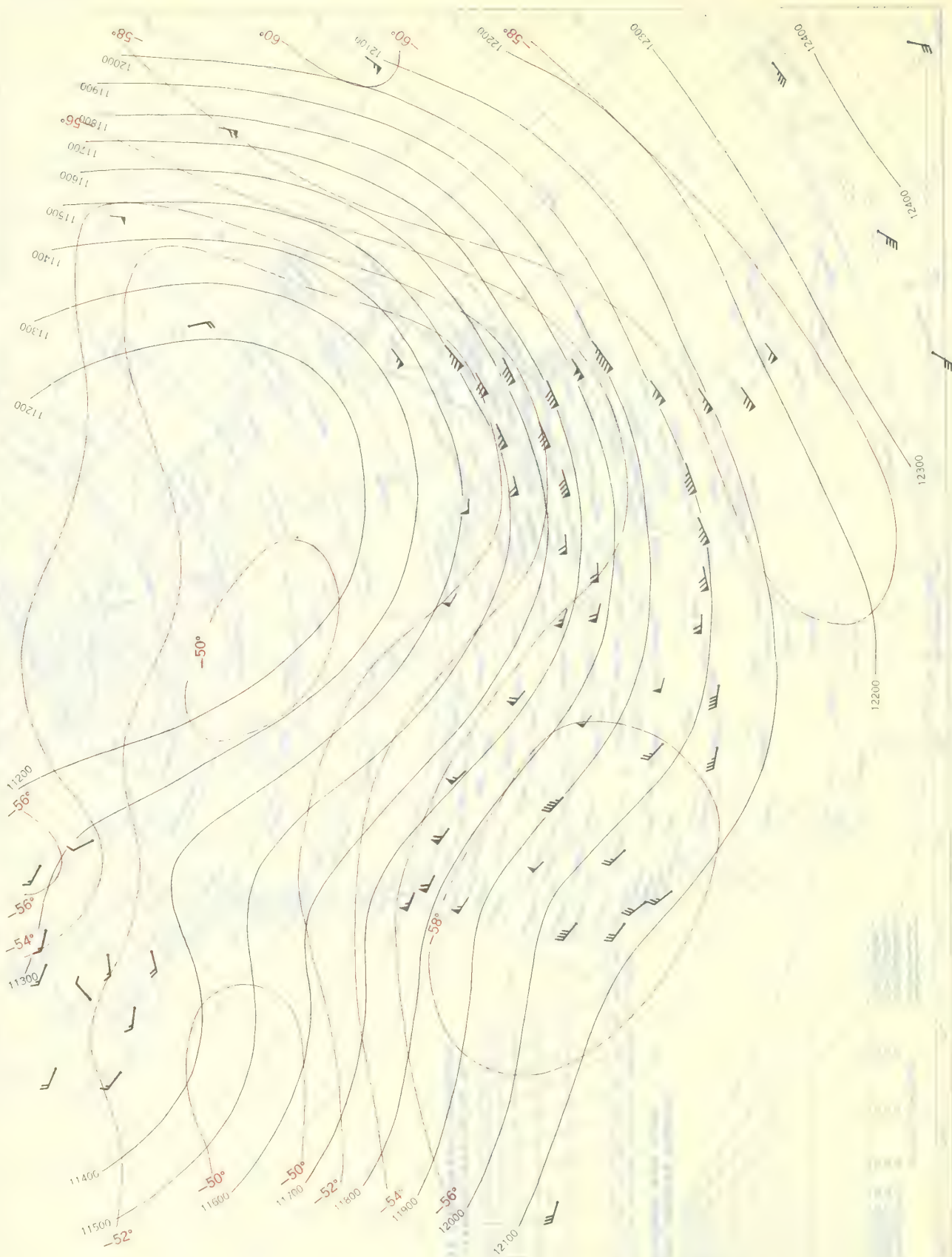
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, December 1958. Average Height and Temperature, and Resultant Winds.



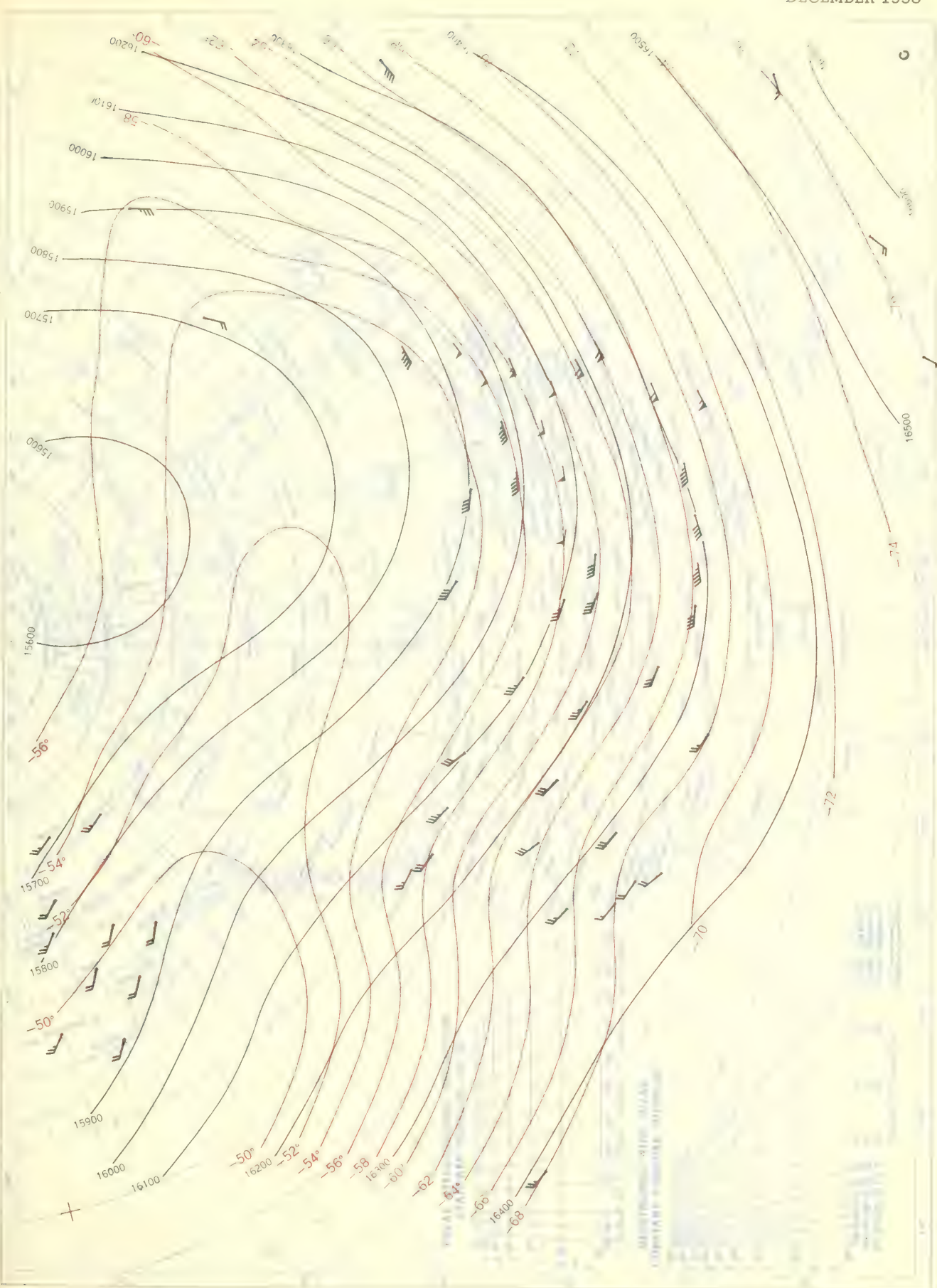
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, December 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, December 1958. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE

LEWIS L. STRAUSS, Secretary

WEATHER BUREAU

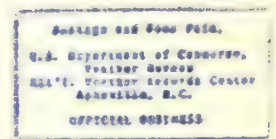
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

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ANNUAL 1958
Volume 9 No. 13



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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 9 No. 13

ANNUAL 1958

GENERAL SUMMARY OF WEATHER CONDITIONS

Compiled by L. H. Seamon
U. S. Weather Bureau, Washington, D. C.

The weather of 1958 was abnormally warm along the southern California coast and cooler than usual east of the Continental Divide. A good mountain snowpack which helped furnish ample irrigation water in the Far West and a wet spring and early summer followed by a dry autumn and late summer east of the Divide favored the growth and harvest of bumper crops. Hurricane damage was limited to the Carolina coasts. Tornadoes were fewer than in 1957, and deaths and losses were below the annual average. Other severe local storms took the usual toll of life and property. Winter-type storms - high winds, snow, glaze, sleet, and extreme cold - were responsible for unusually heavy losses in the East and great expenditures for snow removal in the Northeast.

January and February were unusually mild in the Far West and extremely cold in the Southeast. Frequent storms along the Nation's coastal areas produced heavy rains along the Pacific, Gulf, and south Atlantic coasts, and recordbreaking snowfall in the Northeast. The 2-month period ended Florida's worst winter in history from an agricultural standpoint and very adversely affected the tourist business. Following a severe freeze in that State early in December, others occurred January 9-11 and February 4-5, 11, and 17-18. January was the coldest in the State since 1940, and February was the coldest month there in history, and also ended the State's coldest winter. The outstanding extreme low temperature in the Southeast was -23° at Mt. Mitchell, N. C., on February 17, the lowest temperature ever recorded in that State. Each of numerous storms which moved across the northern Gulf of Mexico and then up the Atlantic coast dumped from 1 to over 3 feet of snow in sections along the middle Atlantic coast and in the Northeast, paralyzing transportation and communications and closing schools and businesses. Worst conditions occurred February 15-17 when heavy snows and blizzard conditions were general over the Northeast and along the coast to Virginia. In eastern Pennsylvania this storm was described as the worst in 32 years, as snowfall ranged from 8 to 45 inches and drifts up to 25 feet. In New York State it was the worst storm of wind and snow in many years and some accounts labeled it worse than the blizzard of 1888. In New England record snowfall for a single storm occurred at several places including Boston with 19.4 inches. Total snowfall during February at Syracuse, N. Y., 72.6 inches, was the greatest amount there for any month of record. Also during February 15-17, a 40-inch snowfall paralyzed Michigan City, Ind. During the night of February 12 snow blanketed sections of the Gulf coast from southern Texas to northern Florida, and a fall of 2.8 inches at Tallahassee, Fla., was the heaviest there on record. With respect to losses the worst of several storms

that battered the west coast occurred on February 24-25, when losses from wind, rain, hail, and lightning were estimated at several million dollars in California alone. The occurrence of a few tornadoes in California during the 2 months is unusual for any time of the year. Severe floods resulting from heavy rains produced by these winter storms occurred in the Sacramento River Basin of California late in February, and in southern Texas early in January and late in February.

Spring (March, April, and May) temperatures averaged above normal in extreme northern areas and along the west coast and below elsewhere. Precipitation was less than 50 percent of normal along the north-central Border and in southern Texas and near to much above normal elsewhere.

During March temperatures were relatively mild along the northern Border, and unusually cold elsewhere, with extreme cloudiness from the lower Rocky Mountains to the Atlantic coast holding daytime temperatures to the lowest levels on record. Snow covered the ground all month in parts of the central Great Plains for the first time on record as new record March totals ranged up to 45 inches in western Kansas. On the 13th to the 16th and 19th to the 22d, heavy snowstorms again plagued the Northeast. The second storm, producing 1 to 3 feet of new snow from northern Virginia through New England, was described as the worst in 40 years in Pennsylvania, and damage in the Philadelphia area was believed to be greater than that caused by Hurricane Hazel in October 1954. Another tornado occurred in California.

For April, temperatures averaged near normal, and precipitation was normal to much above except in the extreme northern Great Plains and upper Mississippi Valley where a continuing 50 percent deficiency was beginning to cause apprehension concerning the coming crop season. In California during the first week, widespread storms including tornadoes caused millions of dollars damage, heavy rains caused serious flooding in the San Francisco Bay area, and recordbreaking snows fell in the Sierras. A 4-day coastal storm (March 31-April 3) was one of the most destructive in 30 years along the central New England coast. Florida tornadoes were responsible for many injuries and heavy damage in Ft. Pierce and St. Augustine areas on the 15th. During May, temperatures were relatively mild, and precipitation was near normal to much above except again deficient in extreme north-central areas. Serious local flooding occurred throughout the month in east Texas, the lower Mississippi Valley, and the Carolinas. Hail took its usual toll in the midcontinent area, but tornado damage was less than 50 percent of average. Another tornado in California caused several thousand dollars damage at Tule Lake.

The summer (June, July, and August) was abnormally

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

YEAR 1958

warm and mostly dry in the Far West, while east of the Rockies the season was unusually cool in north-central and northeastern interior areas, with heavy rainfall in the Corn Belt.

The prevailing low temperatures in the Northeast were the outstanding weather feature of June. The temperature fell below freezing at Speculator, N. Y., as late as the 18th, and snow fell in the mountains as late as the 17th. At Albany, N. Y., this was the coolest June since 1816. Rains up to 12 inches in northern Indiana during the second week caused the greatest summer flood on record in the Wabash and White Rivers, with crop losses estimated at several million dollars. Hail damage was extremely heavy in the midcontinent area, with a storm on the 7th causing damage estimated at well over \$3 million dollars in the Billings, Mont., area. Tornadoes occurred in near recordbreaking numbers with the worst outbreak on the 4th in northwestern Wisconsin where they took 27 lives, injured 169, and property losses were estimated at several million. On the 10th a tornado at Eldorado, Kans., killed 15, injured 50, and caused heavy property losses. Lending a bit of irony to the tragedy at Eldorado was this peculiar incident: A lady was sucked outside through a window and carried about 60 feet by the storm, and beside her lay a broken phonograph record entitled, "Stormy Weather".

July was one of the coolest in the central and north-central interior areas and among the warmest in the Pacific Northwest and Far Southwest. Rainfall was extremely heavy over the Corn Belt and some adjacent areas. Disastrous floods in southwestern Iowa early in the month were blamed for 19 deaths and millions of dollars damage. Major flooding also occurred along several streams in Illinois, Missouri, Kansas, and Nebraska during the month. Numerous severe local storms occurred from the central Great Plains eastward. A remarkable outbreak of violent storms in the eastern third of Kansas during the night of the 10th and 11th were responsible for 4 deaths, 12 injuries, and losses estimated at nearly \$30 million, a few million of which were caused by floods resulting from torrential rains.

During August, abnormally hot weather continued in the Far West, ending one of the hottest summers on record in Washington, Oregon, and along the Pacific coast. The prolonged heat had created an extreme fire hazard, and lightning started numerous range and forest fires. Rainfall showed the usual variations, but was much below normal over large areas. Dry weather was welcome in the Corn Belt, but continued the drought in parts of the northern Great Plains and upper Mississippi Valley. Severe storms were fewer than usual.

Autumn (September, October, and November) precipitation was above normal over about half of the Nation and below in the other half. Tem-

peratures averaged above normal nearly everywhere. The weather generally was excellent for harvesting operations.

September was unusually warm along the California coast. Rainfall was unusually heavy in the Rio Grande and lower Mississippi Valleys. Rather serious flash floods occurred in north-central Kansas and southeastern Kansas the first week. On the 10th and 11th, heavy rainfall produced serious flash flooding in El Paso, Tex. Heavy to excessive rains from the 19th to 21st caused serious local flooding in Mississippi, Louisiana, and east Texas. On the 26th and 27th, hurricane Helene, the month's worst storm and whose center approached within a few miles of the North Carolina coast, caused heavy damage along the coast of that State and the northern South Carolina coast and minor damage in Virginia, totaling altogether several million dollars. October, relative to normal, was warm in the upper Great Plains and Far West, and cool in the South and East. Abnormally heavy precipitation was mostly limited to the Mexican Border region and parts of the east coast. During the first and last weeks of the month at least four major brush fires occurred in California.

Average temperatures for November were abnormally mild over virtually the entire Nation. The month's heaviest precipitation, relative to normal, fell in the northern Great Plains where the previous 10 months of the year had been extremely dry. Recordbreaking heat occurred in the Southeast and Midwest about midmonth. The latter half of the month became stormy and abnormally cold and snowy with local blizzard conditions in the northern Great Plains. Low temperature records for November occurred in the Far Southwest and north of the Ohio River.

December was unusually cold in the East, abnormally mild in the West, and extremely dry in most of the Nation. In many northeastern sections this was the coldest December since 1917. During the second week Oklahoma had its coldest December weather in 30 years, and a snowstorm in the Southeast produced 16 to 18 inches in north-central and northeastern North Carolina on the 11th and 12th. Oswego, N. Y., measured a record December 24-hour snowfall of 33 inches on the 8th, and additional snows there during the month, sometimes drifted over 20 feet high, greatly hampered normal activities. As the month drew to a close, a heavy snowfall from the southwestern Great Plains to the Great Lakes left a record fall of 12 inches at Albuquerque, N. Mex. At the end of the year, ice thickness ranged from 10 to over 20 inches in extreme northern areas east of the Rockies, and the ground was frozen 2 to 3 feet deep in many sections. Ice in the Chesapeake Bay and inflowing streams was the heaviest for so early in the winter in many years.

EXCESSIVE PRECIPITATION

(Excessive Short Duration Rainfall)

YEAR 1958

This table contains statistics of maximum amounts of rainfall during the calendar year 1958. Data presented in this table are generally from stations equipped with recording gages. Stations are at City Office locations unless otherwise shown.

Excessive precipitation data for the years 1896-1935 inclusive, generally present the accumulated amounts of precipitation for each 5, 10, or 20 minute intervals during storms in which the rate of fall equaled or exceeded .25 inch in any 5 minute period, or .30 in any 10 minute period, or .35 in any 15 minute period, etc., the tabulation beginning with the 5 minute period where the rate of .05 inch in 5 minutes began and continuing by 10 or 20 minute intervals up to 120 minutes. A detailed explanation of the method used may be found in the publications listed in the last paragraph of this explanation.

The present method, adopted with data for the calendar year 1936, gives the maximum fall of precipitation for the periods 5 to 180 minutes, the maximum amounts being taken for the periods in which the fall is greatest for the given time, and is tabulated to show maximum amounts for 5, 10, 15, 20, 30, 45, 60, 80, 100, 120, 150 and 180 minutes, even if the fall does not equal the excessive rate for some of the periods. (The 15 minute amount was not computed for 1936-43 and the 150 minute amount was not computed for 1944 through 1948).

The following Table A shows limits at which precipitation was considered excessive in this publication:

TABLE A

Dura- tion (minutes)	Depth of precipi- tation (inches)	Dura- tion (minutes)	Depth of precipi- tation (inches)
5	.25	60	.80
10	.30	80	1.00
15	.35	100	1.20
20	.40	120	1.40
30	.50	150	1.70
45	.65	180	2.00

This table is made up from the formula, $A = t + 20$ where A is the accumulated depth in hundredths of inches and t is the time in minutes.

For the years 1936 through 1948 stations in North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas, Louisiana, Texas, Oklahoma, and San Juan, P. R. used the limits shown in the following Table B:

TABLE B

Dura- tion (minutes)	Depth of precipi- tation (inches)	Dura- tion (minutes)	Depth of precipi- tation (inches)
5	.40	60	1.50
10	.50	80	1.90
15	.60	100	2.30
20	.70	120	2.70
30	.90	150	3.30
45	1.20	180	3.90

This table is made up from the formula $A = 2t + 30$. Its use, however, was discontinued at the end of 1948 and Table A is used by all sections for 1949 and the following years.

Publication of Data. A summary of maximum precipitation data for the years prior to 1896 is published in the annual report of the Chief of the Weather Bureau for 1895-1896. Excessive precipitation data for the period 1881-1896 are published in the annual report of the Chief of the Weather Bureau 1896-1897. Data for the years 1897 through 1934 have been published in the appropriate annual reports of the Chief of the Weather Bureau. For the years 1935 through 1949 these data are published in the appropriate issue of the United States Meteorological Yearbook. For 1950 and succeeding years excessive precipitation are presented in the annual issues of the Climatological Data, National Summary.

YEAR 1958

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EXCESSIVE SHORT DURATION RAINFALL

YEAR 1958

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
FLORIDA (Cont'd.)												
Fort Myers AP (Cont'd.)												
June 10	0.25	0.48	0.58	0.61	0.65	0.67	0.68	0.68	0.68	0.68	0.68	0.68
June 21	.17	.30	.37	.39	.40	.40	.40	.40	.40	.40	.40	.40
June 21	.50	.85	1.01	1.20	1.71	1.94	2.00	2.17	2.23	2.26	2.35	2.42
June 29	.33	.50	.58	.73	.87	.97	.98	.99	.99	.99	1.00	1.00
July 3	.26	.49	.57	.62	.65	.80	.97	1.04	1.10	1.15	1.19	1.25
July 10	.27	.41	.49	.54	.55	.73	.92	.94	.95	.95	.96	.97
July 13	.21	.33	.34	.36	.40	.45	.46	.46	.47	.48	.49	.49
July 16	.30	.43	.55	.61	.62	.63	.64	.64	.64	.64	.64	.64
July 17	.20	.35	.44	.44	.45	.50	.52	.52	.52	.52	.53	.53
July 21	.30	.52	.59	.72	.90	.91	.93	.96	.97	.97	.97	.97
July 30	.40	.75	1.17	1.20	1.45	1.60	1.90	2.04	2.04	2.04	2.04	2.04
Aug. 8	.30	.58	.82	.86	.89	.91	.92	.95	.97	.99	1.01	1.05
Aug. 31	.19	.36	.42	.47	.53	.54	.54	.54	.54	.54	.54	.54
Sept. 1	.35	.55	.70	.79	.84	.84	.84	.84	.84	.84	.84	.84
Sept. 2	.29	.42	.45	.47	.48	.49	.50	.50	.50	.50	.50	.50
Sept. 8	.45	.70	1.15	1.20	1.38	1.70	1.93	1.95	1.95	1.95	1.95	1.95
Sept. 23	.15	.25	.37	.45	.55	.72	.98	1.16	1.21	1.24	1.27	1.36
Sept. 30	.30	.55	.80	.95	1.20	1.24	1.25	1.26	1.29	1.32	1.35	1.35
Oct. 3	.18	.33	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35
Oct. 18	.23	.40	.46	.50	.52	.62	.72	.94	1.04	1.08	1.13	1.15
Oct. 19	.30	.50	.54	.65	.82	1.05	1.12	1.21	1.22	1.28	1.44	1.44
Nov. 9	.50	.95	1.13	1.20	1.27	1.32	1.33	1.34	1.34	1.34	1.34	1.34
Dec. 26	.16	.25	.40	.50	.58	.75	.81	.90	.97	1.05	1.12	1.22
Jacksonville AP												
Feb. 27	.20	.37	.43	.47	.54	.56	.65	.73	.74	.76	.78	.80
Apr. 10	.55	.88	1.07	1.13	1.33	1.54	1.57	1.96	2.09	2.14	2.63	2.81
Apr. 29	.19	.31	.44	.61	.75	.88	.90	.91	.92	.94	1.01	1.08
May 20	.31	.52	.73	.85	1.07	1.48	1.81	2.00	2.28	2.28	2.29	2.30
May 21	.20	.30	.36	.43	.48	.48	.48	.48	.48	.48	.48	.48
June 26	.34	.47	.63	.72	.74	.80	.80	.80	.80	.80	.80	.80
July 2	.19	.32	.38	.39	.39	.39	.39	.39	.39	.39	.39	.39
July 4	.16	.32	.39	.40	.42	.47	.47	.47	.47	.47	.47	.47
July 6	.20	.34	.35	.36	.42	.42	.44	.44	.44	.44	.44	.44
July 26	.25	.31	.33	.38	.41	.41	.45	.52	.60	.60	.67	.69
Aug. 18	.54	.81	1.11	1.37	1.83	2.15	2.35	2.42	2.43	2.47	2.53	2.58
Sept. 5	.33	.50	.73	.81	.88	1.09	1.18	1.27	1.48	1.58	1.58	1.59
Sept. 12	.54	.95	1.18	1.34	1.47	1.48	1.50	1.50	1.50	1.50	1.50	1.50
Sept. 14	.18	.30	.45	.47	.47	.47	.47	.47	.47	.47	.47	.47
Oct. 1	.38	.57	.66	.71	.80	1.03	1.21	1.41	1.62	1.71	1.73	1.74
Key West Airport												
Jan. 1	.40	.60	.65	.70	.70	.70	.70	.70	.70	.70	.70	.70
Jan. 21	.48	.90	1.30	1.63	1.90	2.10	2.15	2.15	2.60	2.81	2.94	2.94
Feb. 7	.42	.68	.86	.92	1.00	1.02	1.06	1.12	1.19	1.28	1.34	1.46
Feb. 15	.46	.50	.50	.50	.52	.52	.52	.52	.52	.52	.52	.52
Mar. 26	.33	.53	.75	.90	1.06	1.08	1.10	1.11	1.13	1.19	1.23	1.27
July 10	.23	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33
Aug. 7	.18	.32	.41	.51	.52	.54	.54	.54	.54	.54	.54	.54
Aug. 8	.24	.33	.41	.48	.65	.82	.91	.94	.95	.95	.95	.95
Aug. 30	.21	.36	.41	.42	.43	.43	.43	.43	.43	.43	.43	.43
Aug. 31	.17	.28	.38	.42	.58	.74	.78	.80	.82	.83	.84	.84
Sept. 13	.41	.54	.71	1.11	1.29	1.66	2.17	2.47	3.18	3.37	3.91	3.93
Sept. 18	.35	.60	.78	.83	.84	.85	.86	.86	.86	.86	.86	.86
Oct. 4-5	.31	.43	.72	.80	1.21	1.27	1.30	1.58	1.68	1.68	1.68	1.68
Dec. 27	.45	.71	.91	1.01	1.15	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Miami												
Mar. 24	.22	.35	.51	.61	.65	.77	.79	.82	.83	.85	.85	.86
Mar. 26	.19	.31	.35	.53	.58	.59	.63	.70	.80	.85	1.07	1.11
Apr. 11	.30	.49	.60	.73	.77	.78	.78	.78	.82	.85	.85	.85
May 6	.35	.59	.67	.82	.89	1.08	1.42	1.49	1.63	1.65	1.84	1.93
May 11	.15	.27	.35	.38	.42	.50	.53	.54	.55	.55	.55	.55
May 14	.35	.64	.79	.82	1.08	1.63	1.84	1.90	1.92	1.93	1.94	1.94
May 14	.16	.26	.40	.48	.58	.68	.73	.76	.76	.76	.76	.76
May 23	.33	.58	.76	.82	.90	.94	1.39	1.77	1.82	1.85	1.89	1.90
May 23	.25	.44	.52	.61	.70	.78	.83	.95	1.06	1.13	1.23	1.32
May 24	.16	.29	.37	.46	.68	.86	.97	1.24	1.30	1.42	1.64	1.75
May 24	.18	.33	.45	.53	.71	.90	1.04	1.24	1.35	1.44	1.56	1.72
June 10	.25	.40	.51	.59	.60	.60	.60	.60	.60	.60	.60	.60
June 25	.38	.59	.66	.71	.80	.84	.85	.85	.86	.94	.94	.94
July 1	.29	.42	.53	.62	.67	.68	.68	.69	.69	.69	.69	.69
July 1	.26	.37	.54	.60	.65	.67	.70	.70	.70	.70	.70	.70
July 13	.25	.46	.61	.71	.73	.73	.75	.76	.76	.76	.76	.76
July 15	.14	.25	.39	.43	.44	.44	.44	.44	.44	.44	.44	.44
July 25	.47	.64	.81	.93	1.17	1.47	1.53	1.60	1.63	1.64	1.64	1.64
Aug. 3	.39	.61	.76	.84	.99	1.31	1.37	1.38	1.38	1.38	1.38	1.38
Aug. 7	.31	.62	.79	.89	.92	.92	.92	.92	.92	.92	.92	.92
Aug. 11	.35	.53	.57	.58	.73	.76	.76	.76	.76	.76	.76	.76
Aug. 15	.26	.46	.64	.86	1.13	1.16	1.28	1.28	1.28	1.28	1.28	1.28
Aug. 20	.33	.47	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
Aug. 31	.24	.42	.65	.89	.98	1.01	1.02	1.02	1.06	1.06	1.06	1.06
Aug. 31	.27	.43	.63	.69	.90	1.02	1.09	1.18	1.19	1.19	1.22	1.23
Sept. 3	.44	.71	1.00	1.10	1.13	1.13	1.21	1.22	1.22	1.27	1.27	1.27
Sept. 30	.35	.57	.74	1.05	1.33	1.56	1.73	1.74	1.74	1.77	1.80	2.29
Oct. 2	.36	.57	.61	.62	.62	.63	.63	.63	.63	.65	.67	.67
Oct. 5	.29	.36	.40	.40	.47	.47	.47	.47	.47	.48	.48	.48
Oct. 16	.22	.32	.34	.35	.56	.69	.70	.72	.78	.92	.94	1.04
Nov. 7	.38	.44	.46	.47	.49	.50	.50	.50	.51	.51	.51	.51
Nov. 7	.23	.32	.42	.47	.61	.86	1.01	1.16	1.22	1.22	1.22	1.22
Nov. 26	.38	.71	1.00	1.43	1.76	2.09	2.33	2.47	2.50	2.50	2.51	2.51
Dec. 7	.37	.65	.93	1.21	1.77	2.14	2.39	2.47	2.57	2.80	2.81	2.83
Dec. 10	.18	.35	.45	.53	.66	.70	.72	.74	.75	.75	.75	.75
Dec. 27	.35	.68	.88	.98	1.49	1.74	1.75	1.75	1.78	1.79	1.80	1.80
Miami Airport												
Feb. 7	.25	.35	.40	.47	.60	.65	.72	.80	.83	.87	.91	.94
Feb. 15	.25	.27	.35	.45	.54	.55	.55	.55	.55	.55	.55	.55
Mar. 24	.45	.68	.75	.80	.82	.85	.90	.92	.94	.94	.94	.94
Mar. 26	.60	.90	.95	1.00	1.06	1.20	1.65	1.86	1.90	2.00	2.30	2.51
May 11	.20	.30	.35	.43	.66	.73	.75	.78	.80	.80	.80	.80
May 14	.50	.95	1.30	1.75	2.25	2.60	2.75	2.77	2.85	3.00	3.10	3.11
May 24	.25	.40	.55	.65	.75	.85	.97	1.10	1.32	1.65	2.11	2.21
May 24	.20	.35	.45	.58	.70	.75	.88	1.05	1.13	1.20	1.30	1.48
June 22	.60	.97	1.04	1.15	1.24	1.32	1.43	1.47	1.61	1.67	1.71	1.72
June 24	.31	.52	.75	.87	.97	1.04	1.15	1.21	1.23	1.26	1.28	1.30
June 25	.27	.50	.65	.75	.82	1.04	1.06	1.06	1.08	1.09	1.10	1.10
July 2	.25	.40	.56	.62	.68	.72	.94	1.14	1.22	1.30	1.34	1.46
July 13	.35	.60	.78	.85	.92	1.03	1.04	1.04	1.04	1.04	1.04	1.04
Aug. 7	.20	.40	.50	.53	.53	.53	.53	.53	.53	.53	.53	.57
Aug. 8	.25	.41	.59	.61	.62	.65	.65	.67	.67	.67	.68	.69
Aug. 11	.20	.35	.55	.65	.84	.88	.88	.89	.89	.90	.90	.90
Aug. 15	.45	.85	1.15	1.32	1.37	1.40	1.42	1.43	1.43	1.43	1.43	1.43
Aug. 24	.20	.35	.45	.50	.54	.54	.54	.54	.54	.54	.54	.54
Aug. 31	.13	.26	.35	.48	.70	.75	.83	.83	.85	.87	.87	.88

EXCESSIVE SHORT DURATION RAINFALL

YEAR 1958

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
GEORGIA (Cont'd.)												
Augusta Airport (Cont'd.)												
July 6	0.13	.20	.27	.39	0.50	0.62	0.64	0.65	0.65	0.66	0.67	0.68
July 8	.16	.30	.42	.50	.53	.58	.58	.58	.58	.58	.58	.58
July 13	.42	.83	1.08	1.36	1.98	2.02	2.03	2.16	2.22	2.23	2.24	2.25
July 16	.29	.52	.68	.86	.91	.93	.93	.93	.93	.93	.95	.96
July 20	.20	.32	.41	.42	.43	.43	.43	.43	.43	.43	.43	.43
July 27	.43	.80	.98	1.02	1.06	1.07	1.07	1.07	1.07	1.26	1.27	1.27
Aug. 2	.24	.47	.56	.59	.60	.61	.61	.61	.61	.61	.61	.61
Sept. 20	.20	.38	.39	.41	.56	.62	.62	.62	.62	.62	.62	.62
Columbus Airport												
Mar. 7	.33	.39	.46	.49	.54	.64	.73	.82	.96	1.01	1.08	1.26
Mar. 7	.10	.16	.23	.30	.43	.65	.85	1.05	1.23	1.43	1.88	1.92
Apr. 22	.29	.32	.35	.37	.50	.74	.84	.89	.97	.98	.98	.98
May 6	.35	.37	.51	.52	.54	.63	.64	.66	.66	.66	.66	.66
June 15	.28	.49	.59	.60	.62	.63	.64	.68	.73	.74	.74	.75
June 15	.25	.45	.64	.77	.90	.91	.91	1.00	1.08	1.16	1.25	1.25
June 19	.18	.30	.37	.38	.39	.39	.39	.39	.39	.39	.39	.39
July 12	.35	.50	.75	1.05	1.35	1.35	1.35	1.60	1.60	1.60	1.60	1.60
July 13	.25	.36	.52	.60	.71	.72	.74	.75	.75	.75	.75	.75
Aug. 1	.20	.30	.36	.40	.50	.52	.52	.52	.53	.53	.53	.53
Aug. 2	.34	.50	.72	.90	.96	1.07	1.09	1.10	1.12	1.12	1.13	1.13
Aug. 17	.35	.43	.48	.50	.52	.55	.56	.56	.56	.57	.80	.86
Sept. 21	.16	.30	.35	.36	.37	.37	.37	.35	.55	.62	.65	.65
Oct. 1	.25	.40	.48	.67	.78	.80	.80	.80	.80	.80	.80	.80
Macon Airport												
June 15	.33	.59	.59	.73	.90	.98	.99	1.49	1.66	1.74	1.79	1.81
July 8	.27	.41	.50	.53	.55	.59	.60	.62	.68	.72	.76	.79
July 10	.28	.46	.60	.69	.81	.85	.86	.87	.87	.87	.87	.87
July 12	.35	.48	.63	.71	.76	.81	.82	.86	.88	.88	.88	.88
July 13	.21	.33	.49	.53	.55	.56	.56	.58	.61	.63	.67	.69
July 14	.15	.28	.37	.41	.51	.51	.51	.52	.52	.52	.52	.53
July 19	.48	.29	.45	.53	.92	1.05	1.13	1.19	1.35	1.36	1.35	1.35
Aug. 11	.29	.58	.65	.65	.65	.65	.83	.83	.83	.83	.83	1.00
Rome Airport												
May 5	.31	.44	.57	.60	.66	.70	.74	.75	.75	.75	.75	.75
June 6	.19	.34	.35	.35	.35	.35	.37	.37	.37	.37	.37	.38
July 13	.21	.37	.42	.44	.45	.54	.59	.65	.74	.78	.78	.78
July 16	.32	.49	.69	.81	.86	.91	.91	.91	.91	.91	.91	.91
Sept. 20	.38	.39	.39	.39	.39	.39	.39	.39	.39	.40	.40	.40
Sept. 21	.37	.56	.83	1.00	1.03	1.12	1.33	1.42	1.49	1.53	1.59	1.67
Savannah Airport												
Apr. 6	.19	.29	.40	.42	.49	.54	.59	.65	.74	.76	.81	.83
Apr. 29	.25	.46	.54	.66	.81	.82	.82	.82	.82	.82	.82	.82
Apr. 30	.16	.32	.38	.42	.45	.46	.46	.46	.46	.46	.46	.46
May 6	.22	.33	.28	.44	.51	.49	.49	.54	.60	.62	.72	.72
June 2	.27	.65	.84	.88	.95	.99	1.19	1.20	1.31	1.32	1.62	1.62
June 15	.54	.81	1.02	1.07	1.20	1.23	1.23	1.24	1.25	1.25	1.26	1.27
July 5	.17	.30	.38	.38	.38	.41	.41	.43	.44	.44	.49	.57
July 14	.29	.40	.42	.44	.44	.48	.64	.77	.78	.78	.78	.78
July 17	.30	.55	.73	.88	.92	1.08	1.16	1.21	1.22	1.22	1.22	1.22
Aug. 3	.42	.74	1.01	1.13	1.21	1.23	1.23	1.23	1.23	1.23	1.23	1.23
Aug. 4	.37	.68	.84	.91	.97	.98	.98	1.00	1.01	1.01	1.01	1.01
Sept. 16	.20	.34	.41	.45	.46	.46	.46	.46	.46	.46	.46	.46
Sept. 16	.21	.37	.42	.56	.75	.94	1.02	1.05	1.05	1.05	1.05	1.05
Sept. 20	.16	.32	.42	.48	.57	.58	.58	.58	.58	.58	.58	.58
IDABO												
Boise Airport												
June 12	.11	.17	.20	.31	.38	.53	.73	1.04	1.19	1.23	1.35	1.41
Pocatello Airport												
None												
ILLINOIS												
Cairo												
Apr. 2	.21	.35	.43	.52	.64	.68	.69	.78	.95	.97	.99	1.00
May 25	.25	.34	.42	.44	.44	.44	.44	.45	.45	.45	.45	.45
June 5	.17	.27	.34	.38	.56	.69	.80	.89	.93	1.00	1.03	1.04
June 11	.27	.56	.67	.78	.89	1.02	1.03	1.07	1.35	1.48	1.62	1.77
June 12	.62	1.13	1.37	1.47	1.55	1.60	1.60	1.60	1.60	1.60	1.60	1.60
July 11	.25	.37	.52	.53	.53	.53	.53	.53	.53	.53	.53	.53
July 30	.24	.42	.48	.52	.53	.53	.53	.53	.53	.53	.53	.53
Aug. 2	.24	.32	.35	.49	.54	.64	.68	.69	.70	.70	.70	.70
Aug. 16	.18	.28	.39	.49	.63	.78	.82	.82	.82	.82	.82	.82
Sept. 26	.30	.49	.66	.74	.85	.92	.93	.93	.93	.93	.93	.93
Oct. 10	.25	.37	.42	.49	.60	.62	.63	.63	.68	.68	.68	.69
Chicago Airport												
May 17	.25	.30	.38	.41	.42	.44	.45	.46	.46	.46	.46	.46
May 31	.25	.39	.45	.52	.58	.60	.64	.71	.77	.81	.92	.98
June 8	.35	.58	.73	.83	.94	1.00	1.04	1.09	1.14	1.16	1.17	1.18
June 13	.34	.46	.59	.78	1.11	1.24	1.30	1.51	1.62	1.85	1.95	1.97
July 2	.33	.45	.57	.68	.79	.80	.83	.84	.88	.90	.92	.92
July 4	.23	.26	.28	.34	.42	.65	.76	.77	.77	.81	.85	.90
Aug. 20	.24	.32	.34	.34	.35	.36	.36	.36	.36	.36	.36	.36
Aug. 21	.18	.33	.40	.44	.51	.55	.60	.67	.73	.78	.79	.81
Moline Airport												
Apr. 23	.18	.32	.35	.38	.44	.44	.44	.44	.44	.44	.44	.44
May 22	.20	.35	.36	.36	.37	.38	.38	.38	.38	.38	.38	.38
May 31	.38	.51	.66	.72	.78	.94	.98	.99	1.04	1.06	1.12	1.40
June 8	.28	.40	.56	.61	.65	.67	.96	1.05	1.06	1.09	1.11	1.12
July 27	.20	.34	.44	.44	.46	.50	.51	.51	.51	.51	.51	.51
Oct. 21	.16	.24	.31	.39	.48	.67	.76	.82	.87	.90	.92	.93
Peoria Airport												
Apr. 5	.26	.32	.33	.34	.36	.43	.51	.52	.54	.64	.68	.87
May 31	.36	.64	.91	1.08	1.17	1.46	1.48	1.52	1.52	1.53	1.53	2.19
June 10	.27	.34	.37	.43	.46	.48	.49	.49	.49	.49	.49	.50
July 10	.24	.32	.34	.34	.41	.54	.64	.67	.88	.88	.97	.97
July 2	.23	.46	.53	.57	.79	1.04	1.33	1.41	1.50	1.61	1.88	2.40
July 12	.15	.29	.43	.50	.73	.92	1.00	1.06	1.06	1.06	1.07	1.08
July 19	.21	.31	.32	.33	.37	.38	.38	.40	.40	.50	.50	.60
July 24	.28	.36	.46	.46	.47	.48	.48	.48	.48	.48	.48	.48
July 27	.35	.63	.71	.75	.78	.79	.80	.80	.80	.80	.80	.80
Aug. 11	.34	.41	.52	.70	.79	.83	.84	.86	.87	1.02	1.05	1.05
Aug. 20	.34	.37	.38	.39	.39	.51	.52	.52	.52	.52	.52	.52
Sept. 15	.14	.26	.37	.46	.60	.78	.83	.86	.89	.91	.92	.92
Springfield AP												
Apr. 5	.24	.36	.41	.43	.46	.51	.55	.57	.57	.63	.85	.99

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
ILLINOIS (Cont'd.)												
Springfield AP (Cont'd.)												
June 9	.19	.32	.36	.39	.41	.42	.43	.43	.43	.43	.43	.43
June 10	.19	.36	.56	.76	1.10	1.48	1.72	1.90	2.66	3.03	3.29	3.56
June 13	.44	.64	.91	1.08	1.08	1.08	1.16	1.22	1.22	1.23	1.23	1.23
July 11	.40	.62	.64	.76	.90	.96	1.03	1.03	1.03	1.03	1.03	1.03
July 11	.33	.49	.50	.50	.54	.54	.54	.54	.54	.54	.54	.54
July 17	.24	.31	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32
July 27	.28	.50	.68	.92	1.37	1.44	1.59	1.60	1.62	1.62	1.63	1.63
INDIANA												
Evansville AP												
Apr. 28	.26	.48	.53	.62	.78	.96	.97	.97	1.54	1.63	1.70	1.70
May 5	.17	.26	.33	.40	.58	.66	.69	.70	.70	.71	.71	.72
June 13	.36	.49	.53	.55	.62	.72	.82	.83	.83	.83	.92	.93
June 19	.18	.30	.34	.34	.42	.44	.44	.45	.45	.45	.45	.45
June 25	.28	.30	.38	.50	.61	.64	.86	1.16	1.48	1.79	1.98	2.30
July 11	.32	.44	.56	.68	.72	.89	1.07	1.13	1.15	1.15	1.15	1.15
July 13	.29	.33	.44	.54	.60	.62	.67	.68	.69	.70	.70	.70
July 17	.22	.44	.68	.71	.74	.75	.77	.78	.80	.80	.88	.95
July 19	.30	.60	.73	.83	.97	1.00	1.01	1.05	1.05	1.05	1.05	1.05
July 21	.22	.36	.44	.48	.50	.56	.62	.67	.70	.72	.73	.74
Aug. 16	.24	.34	.40	.41	.41	.45	.51	.53	.53	.53	.53	.53
Aug. 24	.16	.30	.37	.42	.53	.61	.67	.70	.72	.73	.74	.75
Sept. 16	.22	.31	.32	.33	.42	.45	.48	.70	.75	.79	.81	.82
Sept. 26	.18	.29	.40	.51	.58	.60	.61	.62	.62	.62	.92	1.00
Fort Wayne AP												
June 8	.21	.40	.54	.60	.66	.79	.81	.83	.95	.98	1.04	1.13
June 13	.22	.31	.33	.35	.50	.65	.87	.91	.95	.97	.99	1.04
July 10	.20	.36	.49	.56	.70	.90	1.14	1.27	1.37	1.46	1.60	1.63
July 11	.20	.40	.48	.55	.58	.64	.65	.66	.68	.68	.70	.70
July 25	.57	.57	.79	.87	.88	.88	.88	.88	.88	.88	.88	.88
Aug. 7	.37	.51	.69	.70	.70	.70	.70	.70	.73	.74	.74	.74
Aug. 10	.12	.24	.34	.46	.62	.70	.70	.70	.90	1.16	1.20	1.20
Aug. 11	.14	.26	.35	.44	.51	.65	.69	.74	.76	.76	.81	.82
Sept. 21	.31	.33	.40	.44	.51	.51	.51	.51	.51	.51	.51	.51
Indianapolis AP												
June 10	.42	.54	.58	.60	.61	.62	.84	1.32	1.33	1.33	1.33	1.33
June 13	.46	.37	.55	.66	.74	.88	.96	1.60	1.98	2.12	1.12	1.16
July 27	.50	.73	.73	.74	.75	.76	.76	.76	.76	.76	.82	.85
July 28	.24	.38	.40	.42	.44	.45	.45	.45	.45	.45	.45	.45
Aug. 2	.20	.34	.42	.49	.52	.58	.60	.64	.66	.75	.86	.88
Aug. 15	.26	.46	.50	.56	.62	.65	.66	.70	.76	.86	.95	.98
Nov. 16	.29	.33	.36	.42	.44	.54	.55	.68	.70	.79	.89	.93
South Bend AP												
Apr. 24	.20	.29	.32	.42	.45	.46	.50	.50	.70	.73	.75	.75
July 3	.34	.54	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55
July 5	.24	.32	.50	.69	.80	1.02	1.08	1.10	1.10	1.10	1.10	1.10
July 25	.25	.42	.50	.52	.53	.53	.53	.53	.53	.53	.53	.53
July 29	.47	.62	.69	.72	.80	1.00	1.03	1.03	1.07	1.13	1.25	1.58
Aug. 14	.20	.33	.43	.44	.67	.89	1.07	1.23	1.23	1.23	1.23	1.23
Sept. 6	.20	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
IOWA												
Burlington AP												
May 15	.20	.40	.45	.45	.46	.46	.46	.46	.46	.46	.46	.46
May 31	.23	.36	.46	.49	.51	.54	.57	.59	.62	.62	.62	.62
May 31	.40	.49	.53	.57	.70	.84	.88	.88	.89	.90	.92	.96
June 10	.16	.32	.42	.54	.72	.78	.82	.83	.85	.87	.89	.90
June 12	.23	.35	.50	.69	.79	.83	.89	.94	.97	1.02	1.02	1.02
July 1	.50	.90	1.30	1.35	1.40	1.40	1.40	1.40	1.40	1.58	1.74	1.77
July 3	.35	.70	.74	.77	.78	.78	.79	.79	.79	.79	.79	.79
July 9	.25	.42	.46	.60	.61	.63	.64	.64	.64	.64	.70	.94
July 30	.32	.61	.82	.90	.98	1.02	1.04	1.06	1.08	1.08	1.08	1.18
Aug. 7	.25	.40	.48	.50	.53	.55	.56	.56	.58	.58	.58	.58
Aug. 11	.45	.62	.90	.95	1.04	1.07	1.08	1.08	1.08	1.08	1.08	1.08
Aug. 17	.20	.35	.47	.48	.49	.49	.49	.49	.49	.49	.49	.49
Sept. 23	.25	.35	.38	.50	.63	.74	.84	.89	.95	.97	.99	1.02
Davenport												
Lock & Dam 15												
May 3	.25	.39	.42	.45	.54	.67	.77	.90	.95	1.00	1.02	1.04
May 18	.25	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
May 22	.27	.40	.56	.60	.62	.64	.64	.64	.64	.64	.64	.64
May 31	.25	.47	.52	.57	.58	.74	.92	.93	.93	.93	.93	.93
July 30	.30	.38	.40	.44	.47	.51	.53	.56	.60	.60	.61	.64
July 31	.10	.15	.23	.30	.40	.63	.85	.95	1.00	1.00	1.00	1.00
Aug. 30	.28	.43	.45	.48	.58	.66	.82	.92	.92	.93	.53	.72
Nov. 17	.35	.44	.48	.62	.75	.78	.87	.92	.94	.98	1.15	1.20
Des Moines AP												
June 1	.25	.30	.50	.59	.82	.95	1.34	1.60	1.65	1.66	1.66	1.66
June 12	.35	.51	.52	.54	.56	.60	.62	.66	.68	.82	.87	.88
July 1	.38	.66	.84	.90	1.16	1.30	1.35	1.42	1.48	1.58	1.70	1.71
July 2	.34	.61	.82	1.08	1.38	1.75	1.97	2.32	2.46	2.55	2.67	2.75
July 14	.27	.32	.46	.54	.56	.56	.58	.66	.67	.67	.72	.78
Aug. 13	.19	.32	.34	.35	.35	.35	.35	.35	.35	.35	.35	.35
Aug. 20	.20	.33	.46	.59	.66	.70	.95	1.27	1.30	1.30	1.30	1.30
Sept. 5-6	.22	.32	.33	.37	.39	.53	.64	.79	.89	1.08	1.18	1.25
Dubuque Airport												
May 31	.25	.34	.36	.39	.41	.46	.50	.51	.52	.55	.56	.59
June 8	.35	.67	.78	.86	.91	.93	.95	.95	.96	.96	.96	.99
Aug. 6	.35	.25	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
Aug. 11	.25	.30	.38	.45	.53	.61	.64	.64	.65	.68	.68	.68
Aug. 12	.42	.50	.56	.58	.61	.63	.63	.63	.63	.63	.63	.63
Aug. 15	.17	.25	.36	.40	.41	.45	.51	.53	.56	.57	.60	.62
Aug. 20	.41	.60	.74	.85	1.01	1.05	1.10	1.12	1.13	1.15	1.18	1.25
Oct. 8	.15	.30	.40	.45	.60	.88	.97	1.05	1.08	1.11	1.13	1.15
Sioux City Airport												
June 8	.22	.31	.35	.41	.51	.55	.58	.59	.63	.67	.70	.71
Aug. 5	.28	.45	.50	.51	.52	.52	.52	.52	.52	.52	.52	.52
KANSAS												
Concordia												
May 16	.22	.35	.50	.60	.66	.87	.93	1.11	1.28	1.41	1.46	1.49
May 16	.14	.22	.26	.34	.52	.58	.66	.72	.75	.79	.85	.87
July 1-2	.16	.30	.45	.50	.60	.70	.75	.87	.88	.91	.91	.91
July 15	.22	.40	.52	.72	.85	1.15	1.33	1.42	1.48	1.59	1.72	1.81
July 17	.18	.30	.40	.47	.59	.76	.80	.84	.90	.97	1.07	1.07

EXCESSIVE SHORT DURATION RAINFALL

YEAR 1958

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	90	100	120	150	180
KANSAS (Cont'd.)												
Concordia (Cont'd.)												
July 26-27	0.35	0.55	0.59	0.60	0.61	0.67	0.71	0.75	0.79	0.80	0.85	0.90
Sept. 4	.56	1.14	1.45	1.60	1.70	1.76	1.79	1.79	2.50	2.50	2.52	2.53
Sept. 4	.22	.37	.50	.61	.86	.91	.93	.93	.94	1.14	1.23	1.23
Sept. 9	.30	.55	.75	.86	.98	.98	.98	.98	.98	.98	.98	.98
Dodge City Airport												
May 14	.68	.90	.96	.97	1.09	1.18	1.18	1.18	1.24	1.24	1.24	1.24
June 24	.28	.42	.68	.70	.82	1.06	1.11	1.15	1.15	1.15	1.15	1.15
July 4	.34	.50	.64	.70	.77	.84	.90	.96	1.06	1.14	1.23	1.31
July 13	.30	.58	.74	.83	.89	.90	.91	.91	.91	.91	.91	.91
July 31	.20	.40	.46	.52	.61	.66	.72	.79	.82	.82	.82	.82
Aug. 16	.24	.33	.48	.55	.68	.69	.70	.71	.72	.90	.94	.94
Goodland Airport												
June 18	.15	.25	.35	.42	.52	.55	.57	.58	.59	.60	.60	.60
July 21	.28	.36	.50	.60	.78	.84	.88	.92	.97	.97	.97	.99
July 31	.21	.29	.36	.43	.51	.62	.64	.64	.64	.64	.64	.64
Aug. 15	.24	.30	.40	.49	.59	.61	.63	.65	.93	.98	1.05	1.10
Topeka Airport												
June 8	.18	.30	.40	.50	.67	.88	1.03	1.18	1.28	1.30	1.30	1.30
June 24	.24	.44	.61	.78	.86	.91	.95	1.22	1.38	1.39	1.41	1.41
July 2	.21	.32	.45	.48	.58	.74	.84	.85	.85	.85	.85	.85
July 11	.44	.86	1.22	1.24	1.30	1.31	1.34	1.34	1.34	1.35	1.35	1.35
July 17	.29	.45	.59	.70	.73	.80	.82	.83	.84	.84	.88	.88
July 24	.14	.28	.42	.50	.62	.64	.65	.68	.73	.79	.79	.79
July 30	.20	.38	.46	.51	.52	.53	.53	.54	.56	.56	.56	.57
Aug. 16	.16	.32	.40	.49	.78	1.08	1.42	1.46	1.54	1.62	1.71	1.77
Aug. 20	.40	.78	1.12	1.16	1.23	1.40	1.53	1.54	1.56	1.57	1.58	1.58
Wichita Airport												
Apr. 28	.14	.20	.32	.40	.45	.46	.46	.49	.49	.49	.49	.49
July 4	.20	.33	.36	.46	.48	.50	.67	.75	.78	.81	.88	.93
July 5	.21	.33	.38	.46	.48	.50	.67	.75	.78	.81	.88	.93
July 16	.28	.36	.36	.51	.51	.51	.57	.71	.74	.80	1.16	1.21
Aug. 16	.36	.66	.92	1.28	1.59	1.74	1.91	1.95	1.99	2.03	2.04	2.05
Sept. 2	.14	.23	.34	.34	.57	.74	.90	1.12	1.20	1.29	1.33	1.33
Sept. 10	.24	.45	.53	.75	1.00	1.23	1.26	1.30	1.31	1.31	1.36	1.37
Sept. 16	.16	.30	.36	.46	.72	.74	.79	.84	.90	.96	.96	.96
Sept. 16	.16	.31	.38	.50	.64	.76	.82	.90	.94	1.00	1.06	1.08
Nov. 16	.18	.28	.39	.47	.72	.75	.75	.75	.75	.75	.75	.75
Nov. 17	.28	.46	.61	.66	.68	.71	.72	.72	1.09	1.12	1.15	1.15
KENTUCKY												
Lexington Airport												
Apr. 5	.20	.31	.34	.35	.36	.37	.40	.42	.43	.43	.43	.43
May 2	.36	.56	.61	.62	.64	.66	.68	.68	.68	.68	.68	.68
May 4	.20	.32	.46	.54	.65	.88	1.04	1.18	1.19	1.19	1.22	1.23
June 9	.32	.54	.63	.69	.81	.88	.99	1.11	1.23	1.32	1.51	1.53
July 13	.32	.41	.42	.42	.43	.44	.45	.46	.47	.48	.54	.59
July 7	.38	.51	.52	.53	.55	.66	.68	.68	.69	.69	.69	.70
July 15	.38	.50	.54	.56	.59	.60	1.08	1.10	1.12	1.12	1.13	1.14
July 21	.28	.48	.64	.80	1.06	1.24	1.36	1.41	1.47	1.52	1.88	2.13
July 22	.32	.32	.32	.32	.33	.33	.33	.33	.33	.33	.37	.49
July 24	.28	.34	.48	.52	.69	.89	.93	1.25	1.62	1.63	1.63	1.63
Aug. 13	.30	.44	.50	.60	.80	1.08	1.42	1.56	1.56	1.56	1.56	1.56
Louisville Airport												
Apr. 3	.18	.24	.34	.40	.49	.51	.53	.53	.53	.53	.53	.53
Apr. 20	.20	.34	.36	.39	.43	.47	.47	.47	.54	.64	.68	.68
Apr. 24	.33	.38	.42	.48	.57	.66	.68	.71	.71	.71	.71	.71
May 25	.26	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40
June 9	.27	.28	.28	.28	.28	.28	.36	.37	.39	.39	.39	.39
June 13	.25	.51	.53	.53	.59	.63	.66	.68	.74	.75	.77	.85
July 11	.27	.46	.50	.52	.53	.54	.55	.56	.58	.60	.63	.64
July 25	.20	.32	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34
July 30	.20	.31	.35	.38	.40	.50	.58	.61	.63	.63	.64	.64
Aug. 11	.28	.55	.71	.89	1.26	1.35	1.36	1.40	1.44	1.45	1.46	1.46
Aug. 16	.16	.28	.43	.45	.48	.53	.56	.56	.58	.58	.59	.59
Sept. 16	.12	.16	.26	.38	.52	.64	.69	.70	.71	.72	.72	.72
Sept. 20	.21	.29	.36	.45	.56	.71	.80	.94	1.04	1.11	1.24	1.47
LOUISIANA												
Baton Rouge												
Jan. 12	.13	.25	.35	.40	.53	.70	.95	1.15	1.28	1.38	1.39	1.43
Mar. 5	.20	.25	.25	.25	.50	.50	.51	.53	.53	.53	.53	.53
Mar. 5	.22	.30	.33	.44	.53	.68	.68	.70	.85	.95	.97	.97
Mar. 7	.25	.30	.35	.40	.45	.62	.75	.82	.90	1.03	1.13	1.13
Mar. 23	.25	.33	.37	.46	.54	.67	.85	.95	1.01	1.12	1.44	1.54
Mar. 23	.30	.57	.65	.68	.71	.75	.77	.78	.78	.78	.78	.78
Apr. 9	.25	.40	.48	.52	.68	.83	.90	1.00	1.08	1.09	1.10	1.10
Apr. 27	.20	.35	.45	.56	.66	.88	.95	1.02	1.07	1.18	1.20	1.22
May 4	.25	.35	.38	.50	.65	.71	.75	.94	.95	.95	.95	.95
June 7	.18	.30	.40	.50	.63	.71	.75	.77	.78	.79	.84	.86
June 15	.15	.25	.33	.40	.55	.70	.72	.74	.75	.75	.75	.75
June 15	.25	.43	.57	.74	.80	.92	.95	.95	.95	.95	.95	.95
July 10	.25	.45	.54	.63	.83	.88	.88	.88	.88	.88	.88	.88
July 11	.28	.45	.57	.65	.82	.99	1.01	1.01	1.01	1.01	1.01	1.01
July 17	.35	.50	.53	.58	.58	.58	.58	.58	.58	.58	.58	.58
July 23	.18	.29	.35	.37	.38	.40	.46	.50	.54	.55	.55	.55
July 24	.27	.36	.39	.39	.39	.39	.39	.39	.39	.39	.39	.39
Aug. 8	.35	.64	.75	.85	.95	1.01	1.05	1.05	1.05	1.06	1.06	1.06
Aug. 9	.28	.50	.65	.75	.76	.77	.77	.78	.84	.85	.85	.85
Aug. 13	.25	.37	.47	.51	.60	.67	.73	.73	.74	.74	.75	.75
Lake Charles AP												
Mar. 23	.25	.32	.38	.40	.55	.65	.73	.89	1.02	1.05	1.11	1.16
Mar. 23	.35	.52	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55
Apr. 9	.30	.47	.50	.52	.57	.59	.64	.66	1.04	1.15	1.28	1.29
Apr. 27	.30	.59	.72	.87	.97	.97	1.00	1.43	1.49	1.65	1.82	2.04
May 22	.30	.55	.70	.80	.95	.98	1.01	1.02	1.02	1.02	1.02	1.02
May 24	.30	.55	.75	.87	1.30	1.61	1.63	1.63	1.63	1.63	1.63	1.63
June 6	.38	.49	.50	.50	.51	.53	.58	.60	.60	.60	.61	.62
June 19	.38	.52	.52	.52	.52	.52	.52	.52	.52	.52	.52	.52
July 2	.37	.54	.63	.70	.96	.97	.98	.99	.99	.99	.99	.99
July 19	.28	.38	.56	.68	.76	.79	.80	.80	.80	.80	.80	.80
July 19	.25	.25	.43	.51	.54	.61	.61	.61	.61	.61	.61	.61
July 22	.50	.90	1.00	1.34	1.95	2.50	2.56	2.61	2.61	2.61	2.63	2.66
July 23	.25	.50	.61	.68	.72	.75	.79	.79	.80	.80	.80	.80
Aug. 12	.25	.45	.65	.80	1.02	1.50	1.54	1.54	1.54	1.54	1.55	1.55
Aug. 24	.53	.78	1.23	1.33	1.36	1.53	1.88	2.08	2.16	2.22	2.26	2.29
Sept. 17	.15	.30	.33	.39	.48	.51	.52	.52	.52	.52	.52	.52
Sept. 17	.15	.23	.31	.38	.51	.56	.56	.56	.56	.56	.57	.57

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	90	100	120	150	180
LOUISIANA (Cont'd.)												
Lake Charles AP (Cont'd.)												
Sept. 19	0.28	0.37	0.40	0.42	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Sept. 21	---	---	---	---	---	---	---	---	1.98	2.38	2.78	3.36
Sept. 30	.17	.27	.35	.50	.58	.60	.65	.71	.73	.75	.76	.77
Oct. 10	.22	.40	.48	.53	.56	.59	.60	.60	.60	.60	.60	.62
New Orleans												
Jan. 20	.18	.30	.36	.40	.49	.58	.68	.75	.82	.92	1.15	1.24
Jan. 20	.15	.23	.36	.38	.54	.74	.79	.83	.88	.91	.95	.

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Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
MICHIGAN													
Alpena													
June 30		0.22	0.25	0.40	0.43	0.50	0.50	0.51	0.52	0.53	0.54	0.54	0.54
July 28		.11	.20	.29	.40	.45	.49	.54	.57	.58	.59	.59	.59
Sept. 3		.22	.32	.41	.44	.47	.54	.55	.56	.58	.59	.62	.62
Detroit Airport													
July 2		.16	.30	.36	.39	.43	.43	.43	.43	.43	.43	.43	.43
Aug. 6		.48	.80	.97	1.10	1.23	1.36	1.41	1.46	1.55	1.55	1.57	1.58
Sept. 6		.31	.40	.41	.41	.48	.49	.49	.49	.49	.49	.49	.49
East Lansing													
May 31		.35	.60	.70	.82	.89	.93	.94	.97	.98	.98	.98	.98
June 9		.25	.35	.38	.36	.37	.40	.40	.40	.40	.40	.40	.40
July 4		.30	.45	.46	.54	.64	.67	.74	.74	.74	.74	.74	.74
July 28		.29	.31	.33	.33	.52	.59	.59	.83	.83	.83	.83	.83
Aug. 15		.25	.50	.59	.74	.77	.79	.79	.79	.79	.79	.79	.79
Aug. 20		.29	.32	.39	.42	.44	.49	.54	.56	.62	.62	.64	.64
Oct. 9		.30	.31	.36	.40	.45	.45	.45	.45	.45	.45	.50	.50
Escanaba													
June 30		.25	.50	.60	.65	.87	1.00	1.13	1.35	1.56	1.65	1.70	1.82
July 3		.28	.38	.43	.48	.58	.75	.95	.97	1.05	1.13	1.23	1.35
Aug. 9		.18	.30	.35	.38	.42	.43	.51	.52	.55	.58	.63	.63
Aug. 30		.33	.43	.59	.65	.75	.75	.75	.75	.76	.76	.76	.76
Aug. 30		.40	.75	.85	.90	.98	.98	1.03	1.13	1.16	1.17	1.17	1.17
Sept. 3		.27	.47	.59	.64	.85	.95	.97	.98	.98	.98	.98	.98
Flint Airport													
June 13		.25	.45	.65	.72	1.12	1.35	1.63	1.80	1.99	2.05	2.25	2.41
July 4		.25	.37	.41	.54	.58	.59	.59	.60	.60	.60	.60	.60
July 5		.35	.44	.45	.45	.53	.53	.53	.53	.53	.53	.53	.53
July 28		.21	.30	.35	.45	.50	.63	.64	.64	.64	.64	.64	.64
Aug. 3		.25	.49	.55	.56	.56	.56	.56	.56	.56	.56	.56	.56
Aug. 6		.26	.28	.28	.29	.29	.29	.29	.29	.29	.29	.29	.29
Aug. 21		.20	.35	.47	.53	.59	.65	.70	.72	.77	.82	.84	.91
Oct. 9		.25	.34	.40	.41	.41	.41	.43	.63	.63	.63	.63	.63
Grand Rapids AP													
May 31		.26	.36	.41	.44	.50	.54	.61	.65	.68	.69	.69	.69
Aug. 20		.30	.59	.80	1.04	1.30	1.43	1.74	1.80	1.82	1.82	1.84	1.84
Aug. 21		.38	.43	.46	.68	.77	1.12	1.27	1.30	1.38	1.43	1.91	2.05
Oct. 9		.49	.69	.79	.85	.95	1.06	1.60	2.01	2.06	2.11	2.11	2.22
Marquette													
July 9		.26	.37	.46	.51	.70	.73	.74	.74	.74	.74	.74	.74
Aug. 9		.65	.94	1.13	1.26	1.33	1.37	1.39	1.40	1.43	1.45	1.46	1.46
Sept. 3		.42	.72	.80	.83	.84	.85	.85	.85	.86	.86	.86	.86
Oct. 7		.22	.38	.43	.48	.50	.58	.60	.63	.63	.63	.63	.63
Muskegon Airport													
May 31		.20	.35	.52	.58	.65	.71	.76	.83	.91	.96	.98	1.00
Aug. 6		.23	.45	.51	.58	.63	.64	.65	.67	.67	.67	.67	.67
Aug. 20		.40	.65	.70	.75	.93	1.08	1.12	1.12	1.12	1.12	1.12	1.12
Sept. 9		.15	.28	.31	.42	.49	.57	.61	.68	.80	.84	.85	.85
Oct. 9		.25	.38	.48	.68	.85	1.15	1.28	1.37	1.46	1.52	1.64	1.75
Sault Ste. Marie AP													
None													
Ypsilanti Airport													
Apr. 26		.25	.45	.56	.71	.77	.84	.85	.90	.90	1.06	1.11	1.12
July 3		.20	.28	.29	.30	.39	.70	.85	.87	.88	.88	.88	1.33
MINNESOTA													
Duluth Airport													
June 7		.28	.35	.39	.40	.45	.50	.53	.57	.58	.58	.58	.58
June 30		.25	.37	.41	.47	.52	.84	.86	1.04	1.30	1.50	1.76	1.86
June 30-July 1		.18	.26	.35	.51	.66	.89	.99	1.10	1.30	1.38	1.66	1.73
July 24		.20	.40	.50	.57	.63	.70	.73	.74	.75	.78	.81	.85
Aug. 4		.34	.44	.47	.49	.49	.50	.51	.55	.57	.59	.60	.60
International Falls AP													
July 2		.32	.52	.77	.90	.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Minneapolis AP													
June 3		.18	.30	.41	.49	.56	.58	.63	.74	.80	.84	.88	.90
Aug. 4		.27	.48	.70	.90	1.20	1.62	1.65	1.65	1.65	1.65	1.65	1.65
Rochester Airport													
May 30		.90	1.14	1.27	1.28	1.29	1.31	1.32	1.35	1.35	1.35	1.35	1.35
June 26		.45	.75	.95	1.22	1.54	1.91	2.51	2.63	3.16	3.45	3.69	3.89
Aug. 4		.16	.30	.40	.51	.66	.75	.79	.82	.83	.86	.87	.88
St. Cloud Airport													
May 31		.14	.27	.33	.37	.45	.66	.89	1.04	1.26	1.37	1.40	1.40
July 14		.23	.41	.56	.74	.84	.99	1.09	1.12	1.12	1.12	1.17	1.19
Aug. 4		.24	.45	.67	.76	.80	.82	.83	.86	.86	.86	.93	.93
Aug. 4		1.29	1.95	2.31	2.45	2.68	3.06	3.11	3.12	3.12	3.12	3.12	3.12
Sept. 5		.26	.32	.39	.42	.55	.82	.84	.87	.89	.91	1.09	1.10
MISSISSIPPI													
Jackson Airport													
Jan. 20		.26	.34	.38	.41	.50	.62	.76	.95	1.18	1.30	1.41	1.50
Feb. 26		.32	.62	.72	.85	.97	1.00	1.04	1.08	1.10	1.10	1.10	1.43
Feb. 26		.25	.39	.42	.43	.51	.57	.59	.60	.60	.60	.60	.60
Apr. 14		.15	.30	.35	.39	.43	.46	.46	.47	.48	.49	.49	.49
Apr. 27		.26	.28	.30	.33	.35	.41	.42	.44	.46	.47	.51	.56
Apr. 30		.26	.45	.58	.62	.65	.74	.76	.84	.93	1.07	1.15	1.26
May 4		.43	.80	.87	.88	1.13	1.58	2.07	2.32	2.32	2.32	2.34	2.34
May 24		.33	.38	.42	.46	.51	.55	.57	.57	.57	.57	.57	.57
June 6		.38	.59	.65	.78	.94	.98	1.02	1.02	1.02	1.02	1.02	1.02
June 15		.31	.40	.41	.41	.47	.57	.59	.59	.59	.69	.76	.86
June 16		.16	.26	.35	.38	.42	.53	.74	.88	.92	.95	1.04	1.04
June 17		.39	.57	.83	1.12	1.56	1.83	2.12	2.20	2.28	2.32	2.78	3.05
June 21		.34	.53	.69	.71	.71	.72	.73	.73	.73	.73	.73	.73
July 9		.25	.33	.45	.55	.71	.90	.99	1.05	1.07	1.10	1.13	1.14
July 24		.43	.58	.60	.60	.61	.61	.61	.61	.61	.61	.61	.61
Aug. 9		.16	.26	.40	.46	.49	.49	.49	.49	.49	.49	.49	.49
Aug. 17		.28	.53	.79	.91	1.18	1.42	1.52	1.66	1.73	1.76	1.79	1.81
Sept. 17		.27	.29	.31	.37	.38	.38	.38	.38	.38	.38	.38	.39
Sept. 20		.36	.62	.95	1.03	1.22	1.69	1.74	1.81	1.82	1.82	1.82	1.82
Sept. 21		.22	.41	.43	.46	.53	.54	.61	.64	.66	.69	.71	.76
Sept. 30		.44	.53	.73	.82	1.10	1.15	1.19	---	---	---	---	---
Sept. 30		.38	.73	1.06	1.14	1.23	1.24	1.25	1.25	1.40	1.49	1.74	1.76

Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
MISSISSIPPI (Cont'd.)													
Meridian Airport													
Mar. 7	0.11	0.20	0.30	0.45	0.60	0.85	1.05	1.37	1.45	1.46	1.50	1.65	
May 4	.25	.34	.37	.46	.87	1.45	1.85	1.98	2.05	2.09	2.15	2.30	
June 8	.35	.52	.57	.58	.58	.58	.58	.58	.58	.58	.58	.58	
June 15	.15	.25	.37	.47	.57	.72	.77	1.12	1.27	1.37	1.43	1.43	
June 9	.35	.60	.76	1.02	1.28	1.57	1.84	2.16	2.46	2.64	3.07	3.28	
July 21	.28	.38	.55	.68	.72	.74	.75	.75	.75	.78	.80	.80	
July 29	.28	.50	.70	1.05	1.32	1.35	1.37	1.37	1.37	1.37	1.37	1.37	
Sept. 24	.14	.25	.35	.45	.62	.77	.85	.97	1.00	1.00	1.05	1.15	
Vicksburg													
Jan. 20	.21	.31	.49	.54	.69	.81	.88	.95	1.03	1.09	1.19	1.21	
Feb. 27	.36	.48	.69	.74	1.15	1.28	1.28	1.34	1.35	1.35	1.37	1.41	
Mar. 8	.14	.20	.30	.30	.60	.68	.68	.69	.69	.69	.69	.69	
Apr. 20	.25	.43	.48	.54	.68	.69	.72	.78	.78	.78	.78	.78	
Apr. 29	.27	.44	.58	.62	.65	.66	.68	.75	.77	.77	.77	.77	
Apr. 29	.22	.32	.37	.38	.48	.49	.65	.76	.78	.81	.83	.84	
Apr. 30	.25	.40	.49	.51	.54	.61	.67	.81	1.04	1.13	1.31	1.52	
May 9	.21	.33	.36	.40	.41	.41	.42	.43	.44	.58	.63	.68	
June 9	.26	.25	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	
June 16	.21	.32	.38	.40	.40	.50	.56	.77	.89	.89	.97	1.05	
June 16	.25	.34	.44	.54	.63	.65	.95	1.02	1.15	1.29	1.42	1.62	
June 27	.32	.60	.80	.86	.92	.93	.94	.94	.94	1.00	1.41	1.77	
July 14	.27	.39	.52	.59	.61	.62	.62	.62	.62	.62	.62	.62	
Aug. 12	.21	.36	.42	.44	.47	.51	.54	.54	.54	.54	.54	.54	
Sept. 15	.45	.89	1.14	1.22	1.29	1.47	1.58	1.67	1.77	1.80	1.85	1.87	
Sept. 19	.48	.73	1.01	1.20	1.32	1.43	1.54	1.63	1.65	1.66	1.70	1.72	
Sept. 20	.33	.40	.46	.49	.64	.70	.74	.79	.90	.93	.94	.97	
Sept. 30	.46	.71	1.12	1.35	1.84	1.90	1.93	1.95	1.95	1.95	1.96	2.01	
Nov. 15	.29	.44	.55	.67	1.05	1.36	1.80	2.15	2.24	2.34	2.44	2.46	
MISSOURI													
Kansas City AP													
June 12	.27	.31	.31	.31	.37	.37	.37	.37	.37	.37	.37	.37	
June 14	.34	.46	.52	.60	.69	.71	.71	.71	.71	.71	.71	.71	
June 14	.50	.50	.55	.56	.57	.57	.66	.74	.74	.74	.74	.74	
July 3	.18	.26	.36	.45	.66	.96	1.12	1.14	1.16	1.16	1.18	1.21	
July 17	.19	.25	.43	.55	.71	.75	.78	.80	.80	.80	.81	.86	
July 30	.26	.58	.76	.86	1.16	1.64	2.10	2.38	2.66	3.02	3.38	3.75	
Sept. 4	.16	.31	.42	.53	.66	.86	1.11	1.21	1.28	1.30	1.31	1.36	
Sept. 15	.10	.17	.24	.31	.44	.67	.87	1.13	1.31	1.49	1.69	1.84	
St. Joseph AP													
Apr. 23	.30	.35	.38	.38	.39	.44	.45	.46	.47	.47	.47	.48	
May 4	.20	.35	.41	.51	.63	.64	.67	.68	.69	.95	1.06	1.10	
May 15	.85	1.65	2.05	2.30	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	
May 30	.20	.35	.43	.53	.62	.72	.76	.77	.78	.78	.78	.78	
June 12	.45	.74	.76	.85	.88	.88	.88	.89	.90	.91	.91	1.61	
June 12	.38	.53	.68	.72	.73	.78	.80	.80	.80	.80	.94	.95	
June 23	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	
July 10	.22	.43	.50	.52	.55	.67	.75	.82	1.07	1.34	1.44	1.72	
July 14	.28	.38	.44	.50	.57	.65	.92	1.01	1.01	1.02	1.03	1.03	
July 15	.21	.25	.35	.37	.50	.62	.72	.88	.94	1.15	1.43	1.52	
July 30	.40	.80	.95	1.20	1.30	1.55	1.60	1.62	1.65	1.70	1.72	1.73	
Sept. 23	.25	.38	.48	.68	.93	1.04	1.15	1.24	1.32	1.35	1.38	1.60	
St. Louis Airport*													
July 19	.26	.40	.48	.58	.88	.90	.93	1.08	1.40	1.42	1.44	1.48	
July 27	.24	.42	.58	.62	.87	.96	.98	.99	1.00	1.01	1.81	1.82	
Aug. 11	.21	.27	.47	.53	.83	1.04	1.08	1.09	1.26	1.64	1.64	1.76	
Aug. 16	.25	.35	.48	.49	.50	.50	.50	.50	.50	.50	.50	.50	
Springfield AP													
June 12	.16	.24	.36	.44	.67	.75	.90	.96	1.04	1.04	1.04	1.04	
June 15	.25	.47	.58	.65	.82	.89	.96	1.11	1.21	1.26	1.26	1.26	
July 4	.19	.30	.45	.60	.71	.72	.75	.78	1.05	1.08	1.13	1.15	
July 6	.36	.76	1.09	1.43	2.00	2.27	2.30	2.32	2.32	2.33	2.33	2.33	
July 7	.24	.40	.48	.62	.78	.92	1.00	1.08	1.14	1.34	1.50	1.70	
July 11	.28	.45	.60	.74	.90	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
July 16	.16	.31	.44	.51	.63	.68	.72	.73	.74	.74	.75	.78	
July 16	.44	.80	.96	.97	.98	1.02	1.03	1.05	1.07	1.08	1.08	1.08	
July 20	.40	.66	.74	.77	.78	.84	.99	.99	.99	.99	.99	.99	
July 24	.18	.34	.50	.61	.68	.72	.72	.72	.72	.72	.72	.72	
July 25	.22	.44	.51	.54	.58	.60	.60	.61	.62	.62	.63	.64	
July 29	.24	.38	.48	.50	.50	.50	.50	.50	.50	.50	.50	.50	
July 31	.14	.21	.34	.43	.63	.88	1.00	1.06	1.15	1.31	1.47	1.57	
Aug. 12	.20	.38	.44	.54	.76	.99	1.02	1.03	1.06	1.06	1.06	1.06	
Sept. 1	.24	.45	.59	.64	.80	.94	1.01	1.52	1.82	1.93	1.98	1.99	
Sept. 2	.26	.44	.54	.60	.67	.70	.76	.78	.80	.81	.81	.83	
Sept. 10	.19	.30	.40	.56	.68	.88	1.00	1.07	1.18	1.32	1.49	1.50	
Sept. 15	.40	.57	.66	.72	.76	.77	.78	.80	.82	.88	.92	.94	
Nov. 17	.27	.29	.29	.29	.29	.29	.29	.30	.30	.30	.30	.30	
MONTANA													
Billings Airport													
July 2	.80	1.00	1.22	1.54	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	
Glasgow Airport													
June 9	.20	.33	.47	.57	.62	.64	.64	.65	.65	.65	.65	.65	
Great Falls AP													
Havre													
Helena Airport													
May 31	.28	.30	.31	.32	.34	.35	.35	.35	.35	.37	.37	.39	
Kalispell Airport													
Missoula Airport													
June 11	.27	.48	.76	.91	1.11	1.25	1.36	1.43	1.46	1.51	1.54	1.55	
June 19	.30	.43	.48	.56	.57	.57	.58	.61	.63	.64	.65	.65	
NEBRASKA													
Grand Island AP													
Apr. 4	.15	.30	.45	.55	.64	.78	.83	.87	.88	.88	.88	.88	
May 30	.21	.37	.42	.46	.49	.64	.64	.64	.64	.64	.64	.64	
June 30	.18	.30	.34	.50	.57	.78	.95	.95	1.07	1.07	1.07	1.07	
July 9	.30	.44	.57	.69	.86	1.07	1.44	1.83	1.94	1.97	2.03	2.12	
July 18	.40	.62	.79	.88	1.07	1.12	1.15	1.18	1.20	1.24	1.28	1.32	
July 24	.24	.42	.60	.79	1.15	1.32	1.41	1.43	1.43	1.43	1.43	1.43	
Aug. 1	.54	.69	.82	.82	.82	.82	.82	.82	.82	.82	.82	.82	

* Record started July 1, Lambert Field Station. No excessive at City Office January-June.

EXCESSIVE SHORT DURATION RAINFALL

YEAR 1958

Station and date	Maximum precipitation in inches (5 to 180 minutes)												
	5	10	15	20	30	45	60	80	100	120	150	180	
NEBRASKA (Cont'd.)													
Lincoln	0.17	0.27	0.36	0.48	0.55	0.58	0.60	0.61	0.62	0.62	0.62	0.62	
May 30	.18	.28	.37	.45	.54	.56	.56	.56	.56	.56	.56	.56	
July 1	.20	.32	.39	.39	.39	.40	.41	.43	.49	.49	.49	.50	
July 3	.41	.72	.93	1.05	1.07	1.11	1.43	1.51	1.61	2.03	2.63	2.74	
July 9-10	.24	.37	.48	.60	.66	.89	.92	.94	.99	1.00	1.04	1.24	
July 19	.34	.52	.64	.70	.78	.99	1.04	1.07	1.13	1.15	1.17	1.18	
July 24	.40	.55	.66	.79	.96	1.16	1.37	1.41	1.41	1.42	1.42	1.42	
Aug. 5	.22	.35	.39	.40	.43	.43	.43	.44	.45	.46	.46	.46	
Aug. 13	.30	.34	.36	.36	.37	.37	.37	.37	.37	.37	.37	.37	
Aug. 20	.34	.60	.74	.85	1.08	1.67	2.10	2.21	2.36	2.39	2.43	2.52	
Sept. 3	.23	.33	.51	.53	.59	.63	.66	.70	.78	.82	.82	.82	
Sept. 5	.36	.71	.86	1.08	1.35	1.38	1.41	1.46	1.53	1.60	1.67	1.74	
Sept. 9	.17	.33	.42	.51	.53	.53	.55	.55	.55	.56	.56	.56	
Norfolk Airport													
June 8	.22	.42	.60	.75	.84	.95	1.00	1.00	1.00	1.00	1.00	1.00	
July 2	.20	.37	.44	.48	.52	.57	.67	.70	.73	.75	.75	.75	
July 8	.25	.33	.34	.35	.35	.35	.35	.35	.35	.35	.35	.35	
July 10	.25	.30	.31	.33	.38	.42	.47	.52	.57	.60	.60	.61	
July 27	.23	.33	.51	.53	.59	.63	.66	.70	.78	.82	.82	.82	
July 30	.43	.62	.85	.98	1.33	1.38	1.38	1.38	1.38	1.50	1.92	1.95	
July 30	.22	.37	.42	.44	.52	.55	.55	.56	.56	.56	.56	.56	
Aug. 5	.17	.33	.36	.66	.80	.81	.81	1.08	1.09	1.10	1.12	1.17	
North Platte AP													
May 12	.33	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	
May 13	.47	.68	.73	.87	.93	.94	1.12	1.21	1.30	1.33	1.35	1.35	
May 27	.20	.38	.48	.50	.54	.54	.55	.56	.56	.56	.56	.56	
June 9	.26	.33	.39	.41	.42	.43	.44	.46	.47	.48	.48	.48	
July 18	.22	.42	.50	.67	.90	1.05	1.12	1.16	1.21	1.26	1.30	1.32	
July 20	.44	.62	.73	.86	1.05	1.20	1.24	1.28	1.32	1.37	1.40	1.40	
Aug. 5	.28	.51	.62	.74	.86	1.03	1.13	1.21	1.31	1.45	1.51	1.55	
Omaha Airport													
Apr. 4	.33	.44	.50	.53	.58	.71	.78	.83	.84	.84	.90	.99	
Apr. 19	.25	.45	.65	.75	.84	.89	.98	1.00	1.00	1.00	1.00	1.00	
May 17	.22	.36	.40	.44	.46	.46	.46	.46	.46	.46	.46	.46	
July 19	.45	.85	.92	.97	.99	1.01	1.03	1.07	1.11	1.17	1.21	1.29	
July 30	.47	.87	1.12	1.18	1.20	1.21	1.48	1.66	1.67	1.83	2.27	2.34	
Sept. 5	.25	.31	.40	.43	.45	.66	.72	.74	.74	.77	.80	.82	
Nov. 16	.23	.35	.39	.42	.45	.49	.51	.51	.51	.51	.51	.51	
Scottsbluff AP													
June 1	.26	.43	.54	.59	.66	.90	.93	1.07	1.07	1.07	1.07	1.07	
June 8	.25	.43	.60	.76	.82	1.23	1.30	1.32	1.46	1.48	1.57	1.80	
June 15	.25	.41	.42	.45	.46	.47	.47	.48	.48	.48	.48	.48	
July 20	.28	.53	.76	.77	.86	.89	.94	.97	.97	.97	.97	.97	
Valentine Airport													
July 2	.19	.25	.40	.43	.48	.51	.55	.57	.60	.64	.68	.68	
July 25	.35	.60	.95	1.09	1.50	1.80	1.92	1.97	2.00	2.03	2.03	2.03	
NEVADA													
Elko Airport													
Aug. 12	.20	.31	.38	.44	.47	.48	.48	.48	.48	.48	.48	.48	
Ely Airport													
None													
Reno Airport													
None													
Winemucca Airport													
June 10	.30	.49	.69	.80	1.00	1.08	1.10	1.10	1.10	1.10	1.10	1.10	
Aug. 2	.28	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	
NEW HAMPSHIRE													
Concord													
June 26	.25	.50	.75	.80	.89	.93	.93	.95	.99	.99	1.01	1.01	
Aug. 14	.35	.45	.47	.50	.55	.63	.65	.68	.68	.68	.68	.68	
Aug. 21	.25	.41	.45	.46	.48	.58	.52	.65	.72	.77	.77	.82	
Sept. 7	.15	.21	.39	.47	.53	.57	.64	.66	.67	.77	.83	.84	
NEW JERSEY													
Atlantic City *													
May 4	.26	.27	.29	.29	.30	.30	.30	.30	.30	.30	.30	.30	
June 11	.36	.55	.59	.60	.61	.64	.65	.65	.67	.69	.74	.83	
June 26	.18	.30	.43	.52	.59	.69	.78	.90	.90	.91	.97	1.09	
Aug. 13	.14	.16	.32	.42	.54	.57	.59	.62	.62	.63	.63	.63	
Aug. 16	.25	.32	.38	.52	.56	.56	.64	.80	.90	.99	1.04	1.04	
Aug. 24	.26	.39	.63	.76	.82	.84	.97	1.41	1.54	1.63	1.68	1.78	
Aug. 25	.25	.46	.56	.65	.72	.77	.86	.95	.99	.97	.97	.98	
Newark Airport													
June 13	.36	.61	.72	.74	.82	.82	.82	.85	.85	.88	.88	.88	
June 26	.27	.36	.40	.41	.44	.50	.50	.50	.50	.50	.50	.50	
July 8	.27	.32	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	
Sept. 27	.23	.39	.44	.58	.65	.72	.74	.76	.82	.84	.84	.84	
Trenton													
Apr. 6	.19	.31	.40	.49	.62	.82	1.00	1.21	1.33	1.41	1.54	1.66	
Apr. 29	.16	.27	.37	.43	.49	.56	.58	.60	.65	.69	.72	.75	
July 6	.15	.28	.36	.40	.46	.50	.56	.65	.76	.79	.82	.83	
July 27	.20	.37	.52	.58	.60	.81	.90	.90	.90	.93	.93	.93	
Aug. 25	.16	.29	.42	.50	.60	.65	.67	.68	.68	.69	.77	.83	
Aug. 25	.12	.22	.31	.38	.50	.59	.69	.80	.89	.98	1.10	1.17	
Sept. 17-18	.29	.36	.38	.40	.44	.50	.58	.63	.81	.84	.86	.86	
NEW MEXICO													
Albuquerque AP													
Sept. 10	.18	.31	.42	.50	.62	.68	.69	.70	.74	.76	.77	.77	
Raton Airport													
May 25	1.25	1.48	1.58	1.68	1.71	1.73	1.73	1.73	1.73	1.73	1.73	1.73	
June 5	.20	.28	.32	.50	.53	.54	.55	.55	.55	.55	.74	.76	
June 6	.20	.35	.45	.50	.65	.76	.81	.94	.98	1.00	1.10	1.12	
July 24	.14	.27	.37	.43	.43	.43	.43	.44	.44	.44	.44	.44	
July 27	.25	.47	.54	.58	.66	.86	.90	.92	.93	.93	.93	.93	
Aug. 4	.18	.33	.45	.45	.48	.65	.65	.65	.65	.65	.65	.65	
Aug. 7	.49	.65	.70	.85	.92	.95	.95	.95	.95	.95	.95	.95	
Aug. 18	.49	.89	1.26	1.43	1.58	1.67	1.80	1.87	1.89	1.89	1.89	1.89	
Aug. 22	.26	.46	.53	.55	.57	.58	.58	.58	.58	.58	.58	.58	
Sept. 8	.12	.21	.29	.41	.50	.53	.53	.53	.54	.54	.54	.54	
NEW MEXICO (Cont'd.)													
Roswell Airport													
None													
NEW YORK													
Albany Airport													
July 8	0.26	0.45	0.50	0.53	0.62	0.67	0.77	0.82	0.85	0.85	0.86	0.86	
Binghamton AP													
June 5	.34	.40	.57	.59	.81	.84	.85	.86	.86	.86	.86	.86	
June 13	.12	.20	.31	.40	.49	.55	.61	.82	1.11	1.21	1.35	1.40	
July 1	.26	.42	.49	.52	.65	.70	.71	.71	.71	.71	.71	.71	
July 5	.29	.41	.44	.44	.44	.44	.47	.47	.50	.56	.65	.68	
July 6	.28	.50	.57	.61	.68	.78	.79	.94	.94	.94	.94	1.01	
Aug. 14	.20	.34	.34	.34	.36	.42	.48	.49	.50	.50	.50	.50	
Buffalo Airport													
Aug. 10	.25	.42	.48	.50	.51	.51	.51	.51	.51	.51	.51	.51	
Aug. 24	.20	.30	.36	.38	.39	.39	.39	.39	.39	.39	.39	.39	
Aug. 31	.25	.43	.57	.67	.75	.77	.78	.88	.96	.98	.98	.98	
Sept. 25	.25	.35	.38	.39	.52	.66	.68	.68	.69	.70	.70	.70	
New York													
Feb. 28	.16	.24	.33	.40	.50	.59	.67	.74	.84	.94	1.11	1.14	
Apr. 6	.13	.29	.42	.49	.61	.76	.84	1.02	1.07	1.12	1.22	1.28	
June 13	.43	.62	.67	.81	.83	.84	.84	.84	.84	.84	.84	.84	
July 31	.15	.28	.35	.36	.52	.58	.60	.65	.66	.66	.66	.66	
Aug. 25	.30	.40	.43	.45	.56	.64	.78	.98	1.02	1.11	1.		

EXCESSIVE SHORT DURATION RAINFALL

YEAR 1958

Station and date	Maximum precipitation in inches (5 to 180 minutes)													
	5	10	15	20	30	45	60	80	100	120	150	180		
NORTH CAROLINA (Cont'd.)														
Wilmington AP (Cont'd.)	0.19	0.35	0.46	0.59	0.81	1.21	1.55	2.08	2.42	2.82	3.43	3.86		
Sept. 27	.13	.25	.35	.49	.67	.84	.97	1.04	1.07	1.09	1.11	1.11		
Oct. 3	.18	.35	.50	.68	.76	.79	.80	.80	.80	.81	.81	.82		
Dec. 28														
NORTH DAKOTA														
Bismarck Airport	.22	.37	.55	.63	.85	.97	1.05	1.10	1.13	1.13	1.13	1.13		
June 2														
Devils Lake	.20	.38	.54	.59	.63	.64	.65	.65	.65	.65	.65	.65		
May 30	.16	.29	.37	.41	.50	.51	.56	.57	.57	.57	.57	.57		
July 17														
Fargo Airport	.26	.40	.48	.53	.64	.84	.92	1.03	1.05	1.07	1.08	1.09		
June 4	.25	.36	.37	.39	.42	.47	.52	.64	.69	.70	.71	.72		
June 9	.22	.31	.34	.36	.37	.42	.45	.46	.46	.46	.46	.46		
June 17	.22	.32	.32	.37	.39	.39	.49	.71	.73	.73	.74	.74		
June 30	.20	.31	.40	.47	.74	.96	1.04	1.48	1.63	1.65	1.69	1.74		
July 3	.50	.70	.96	1.24	1.30	1.48	1.48	1.48	1.48	1.48	1.48	1.48		
July 13	.28	.48	.54	.59	.61	.64	.67	.68	.68	.68	.68	.68		
July 26	.34	.52	.60	.71	.81	.89	.97	1.04	1.09	1.11	1.13	1.14		
Aug. 22														
Williston						None								
OHIO														
Akron Airport	.16	.25	.41	.48	.64	.73	.80	.86	.89	.92	1.02	1.08		
Apr. 28	.18	.30	.41	.59	.67	.90	1.03	1.08	1.11	1.17	1.24	1.25		
July 7	.40	.70	.84	1.10	1.30	1.32	1.48	1.51	1.52	1.62	1.66	1.68		
July 14	.45	.52	.78	.82	.83	.83	.83	.83	.83	.83	.83	.83		
July 15	.26	.40	.42	.43	.47	.47	.47	.47	.47	.47	.47	.47		
July 30	.20	.36	.40	.51	.66	.74	.80	.96	1.18	1.34	1.56	1.74		
July 31	.34	.66	.73	.76	.79	.80	.80	.81	.81	.81	.81	.81		
July 31	.24	.32	.35	.35	.35	.35	.37	.37	.41	.47	.49	.54		
Aug. 7														
Cleveland Airport	.17	.30	.32	.32	.32	.33	.33	.34	.35	.35	.35	.35		
May 22	.25	.34	.36	.37	.39	.41	.43	.43	.43	.43	.43	.43		
June 1	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.44	.44		
June 24	.30	.37	.43	.47	.47	.47	.62	.65	.65	.65	.65	.72		
June 25	.30	.30	.30	.32	.32	.32	.32	.32	.32	.32	.32	.32		
July 5	.25	.44	.45	.45	.45	.45	.45	.45	.45	.45	.46	.47		
July 29	.15	.25	.35	.45	.60	.70	.79	.85	.89	.90	.92	.93		
Aug. 6	.25	.40	.53	.55	.58	.65	.78	.87	.89	.90	.97	1.02		
Aug. 7	.25	.25	.25	.25	.42	.42	.42	.42	.42	.42	.42	.42		
Aug. 12	.20	.38	.54	.64	.84	.98	1.12	1.23	1.32	1.36	1.39	1.39		
Nov. 17														
Columbus Airport	.25	.42	.50	.55	.62	.62	.62	.62	.62	.62	.62	.62		
June 5	.20	.34	.41	.55	.69	.77	.93	1.09	1.30	1.32	1.32	1.32		
June 10	.35	.53	.57	.58	.60	.66	.68	.74	.74	.74	.74	.74		
June 13	.25	.42	.60	.85	1.05	1.14	1.18	1.20	1.31	1.54	1.84	1.92		
July 22	.25	.40	.55	.65	.90	1.18	1.18	1.18	1.18	1.18	1.18	1.18		
July 24	.20	.35	.45	.47	.52	.63	.82	.99	1.24	1.26	1.28	1.30		
July 31	.22	.35	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36		
Aug. 31														
Dayton Airport	.23	.35	.38	.46	.51	.55	.64	.71	.75	.77	.79	.80		
Apr. 5	.32	.43	.48	.58	.60	.62	.68	.74	.79	1.16	1.16	1.16		
Apr. 28	.26	.41	.56	.69	.90	.98	.99	.99	.99	1.00	1.01	1.03		
May 3	.13	.21	.34	.40	.42	.43	.44	.44	.45	.45	.45	.45		
May 22	.27	.43	.63	.69	.86	.89	.90	.94	.98	1.01	1.03	1.03		
June 9	.38	.49	.50	.53	.57	.60	.64	.68	.68	.70	.71	.71		
June 10	.36	.54	.66	.82	.94	1.12	1.20	1.28	1.31	1.32	1.35	1.35		
June 13	.24	.37	.50	.63	.71	.74	.78	.80	.80	.80	.80	.80		
June 13	.49	.68	.76	.78	.79	.79	.79	.84	.84	.84	.84	.84		
June 13	.51	.86	.98	1.01	1.12	1.12	1.13	1.13	1.13	1.13	1.58	1.61		
June 25	.27	.38	.42	.46	.53	.57	.62	.64	.67	.71	.77	.85		
July 6	.27	.32	.36	.37	.40	.42	.42	.43	.43	.47	.47	.47		
July 28	.30	.46	.58	.59	.65	.74	.78	.78	.81	.84	.84	.84		
July 31	.20	.31	.32	.33	.38	.40	.40	.40	.42	.44	.44	.44		
Sept. 5	.40	.62	.92	1.00	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10		
Sept. 16	.20	.34	.37	.38	.40	.40	.40	.42	.44	.44	.44	.44		
Oct. 17	.34	.36	.36	.36	.36	.39	.50	.50	.50	.50	.50	.50		
Sandusky	.25	.40	.50	.50	.52	.52	.53	.54	.54	.55	.56	.56		
Apr. 28	.25	.50	.50	.50	.54	.55	.65	.67	.75	.75	.75	.75		
July 14	.25	.30	.30	.30	.35	.45	.50	.54	.58	.60	.63	.64		
Aug. 6	.32	.57	.70	.74	.74	.74	.74	.74	.74	.74	.78	.81		
Aug. 7														
Toledo Airport	.17	.32	.46	.46	.46	.46	.46	.46	.46	.46	.46	.49		
May 18	.30	.51	.66	.68	.88	1.05	1.22	1.23	1.24	1.24	1.24	1.24		
July 2	.21	.34	.37	.42	.53	.58	.65	.68	.72	.72	.75	.77		
July 14	.16	.29	.37	.44	.51	.58	.67	.73	.76	.78	.79	.80		
July 15	.45	.60	.73	.81	.82	.85	.85	.88	.90	.93	.96	1.01		
Aug. 6	.50	.75	.84	.92	.98	1.16	1.16	1.18	1.27	1.30	1.42	1.44		
Aug. 15	.30	.45	.55	.55	.60	.60	.65	.65	.65	.65	.65	.65		
Sept. 6	.25	.30	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35		
Youngstown Airport	.20	.36	.42	.44	.59	.65	.68	.69	.69	.69	.70	.70		
June 10	.16	.28	.44	.47	.49	.50	.52	.52	.52	.52	.52	.52		
July 5	.16	.30	.45	.50	.60	.64	.66	.74	.78	.94	1.00	1.00		
July 11	.21	.32	.34	.35	.37	.39	.46	.55	.59	.65	.68	.68		
Sept. 4	.37	.45	.51	.56	.56	.57	.61	.63	.68	1.09	1.14	1.15		
Sept. 7	.25	.45	.51	.53	.54	.55	.56	.56	.56	.56	.56	.57		
Nov. 17	.23	.38	.42	.47	.60	.76	.91	.97	.98	.98	1.01	1.02		
OKLAHOMA														
Oklahoma City AP	.20	.30	.40	.44	.57	.65	.69	.74	.77	.80	.81	.83		
Apr. 19	.25	.36	.50	.65	.90	1.12	1.45	1.63	1.66	1.66	1.67	1.67		
May 30	.18	.30	.38	.44	.61	.64	.66	.67	.67	.67	.67	.67		
June 15	.32	.55	.60	.70	1.07	1.15	1.16	1.30	1.34	1.35	1.36	1.38		
June 16	.35	.42	.51	.52	.56	.56	.56	.56	.56	.56	.56	.56		
June 18	.39	.60	.70	.95	1.31	1.41	1.47	1.66	1.79	1.80	1.86	2.06		
June 21	.36	.69	.76	.95	1.31	1.06	1.10	1.16	1.18	1.22	1.24	1.30		
July 27	.40	.62	.65	.66	.68	.73	.81	.85	.86	.91	.95	.95		
Aug. 6	.18	.32	.38	.55	.68	.69	.75	.91	.96	.98	.99	1.01		
Aug. 8	.30	.49	.50	.50	.59	.60	.60	.60	.60	.61	.61	.61		
Aug. 20														

Station and date	Maximum precipitation in inches (5 to 180 minutes)												
	5	10	15	20	30	45	60	80	100	120	150	180	
OKLAHOMA (Cont'd.)													
Oklahoma City AP (Cont'd.)													
Sept. 10	0.22	0.36	0.43	0.53	0.80	0.95	1.05	1.12	1.24	1.27	1.28	1.28	
Tulsa Airport													
Apr. 21	.54	.65	.75	.95	1.05	1.10	1.30	1.32	1.52	1.55	1.57	1.57	
May 10	.30	.50	.58	.65	.70	.80	.84	.88	.96	.99	.99	.99	
May 24	.35	.70	1.05	1.16	1.22	1.24	1.25	1.26	1.26	1.26	1.26	1.26	
June 25	.21	.32	.44	.45	.45	.45	.45	.46	.50	.52	.55		
July 28	.20	.38	.53	.60	.73	.76	.77	.89	.91	.95	1.00	1.02	
Sept. 10	.23	.29	.42	.51	.55	.57	.58	.58	.59	.60	.64	.64	
Sept. 15	.19	.38	.53	.55	.60	1.11	1.16	1.16	1.16	1.16	1.16	1.17	
Nov. 17	.40	.75	.88	.89	.89	.89	.89	.89	.89	.89	.89	.89	
OREGON													
Astoria Airport													
Oct. 19	.25	.30	.35	.36	.42	.46	.54	.60	.68	.92	1.01	1.15	
Nov. 12	.25	.45	.57	.62	.73	.82	.87	.96	1.00	1.02	1.07	1.13	
Eugene Airport							None						
Meacham Airport							None						
Medford Airport													
June 22	.22	.34	.54	.64	.71	.72	.72	.73	.73	.73	.73	.73	
July 17	.19	.35	.46	.49	.51	.53	.54	.59	.59	.59	.59	.59	
Pendleton Airport							None						
Portland							None						
Portland Airport							None						
Roseburg Airport							None						
Sexton Summit							None						
PENNSYLVANIA													
Allentown Airport													
July 27	.35	.52	.59	.64	.78	.80	.82	.82	.82	.82	.82	.82	
July 28	.25	.38	.42	.47	.50	.51	.52	.52	.52	.52	.52	.52	
July 31	.25	.35	.45	.51	.67	.83	.90	.92	.97	1.00	1.00	1.00	
Aug. 24-25	.17	.23	.39	.45	.48	.48	.57	.60	.61	.62	.62	.63	
Sept. 27	.15	.25	.30	.38	.50	.70	.83	1.05	1.24	1.42	1.58	1.62	
Erie Airport													
June 10	.13	.23	.36	.39	.51	.53	.54	.54	.54	.56	.56	.56	
June 10	.18	.28	.39	.51	.54	.64	.64	.64	.68	.68	.68	.68	
July 2	.16	.29	.35	.41	.57	.77	.84	.91	.94	1.02	1.08	1.08	
July 15	.22	.31	.43	.47	.49	.50	.60	.60	.60	.60	.61	.61	
Aug. 6	.17	.31	.37	.45	.58	.74	.92	1.04	1.04	1.04	1.04	1.04	
Aug. 17	.24	.34	.40	.41	.42	.43	.43	.43	.43	.43	.43	.43	
Sept. 4	.19	.30	.35	.36	.62	.62	.64	.76	.78	.78	.78	.78	
Sept. 6	.24	.33	.36	.40	.43	.46	.51	.56	.63	.69	.76	.76	
Harrisburg AP													
May 25	.36	.40	.45	.46	.46	.46	.46	.47	.61	.67	.68	.69	
July 5	.23	.36	.38	.49	.51	.52	.53	.53	.53	.63	.64	.72	
July 31	.17	.32	.36	.43	.47	.52	.54	.54	.54	.54	.54	.54	
Aug. 12	.17	.32	.38	.39	.40	.40	.40	.40	.54	.55	.55	.55	
Sept. 27	.26	.41	.50	.53	.60	.65	.69	.71	.75	.79	.90	.97	
Sept. 27	.22	.33	.45	.51	.53	.58	.62	.67	.68	.68	.74	.85	
Philadelphia AP													
May 4	.37	.45	.48	.49	.50	.50	.50	.50	.50	.50	.50	.50	
June 11	.80	1.26	1.38	1.43	1.47	1.48	1.56	1.66	1.81	1.83	1.93	2.02	
July 12	.16	.27	.37	.45	.47	.47	.47	.47	.49	.52	.53	.61	
July 24	.32	.63	.71	.75	.87	.95	1.00	1.14	1.28	1.42	1.43	1.44	
Aug. 15	.21	.37	.43	.58	.78	.82	.88	.88	.88	.88	.88	.88	
Pittsburgh													
July 10	.23	.35	.43	.63	.68	.70	.70	.70	.70	.70	.75	.75	
July 11	.20	.36	.38	.38	.38	.38	.38	.38	.38	.38	.38	.43	
July 21	.24	.42	.49	.52	.53	.55	.55	.55	.57	.57	.57	.58	
July 30	.22	.24	.38	.42	.47	.48	.56	.56	.56	.56	.56	.56	
Aug. 2	.20	.32	.35	.40	.62	.80	1.00	1.04	1.11	1.18	1.22	1.24	
Aug. 12	.30	.47	.48	.51	.51	.52	.52	.52	.52	.52	.52	.52	
Aug. 21	.33	.54	.61	.65	.68	.68	.68	.68	.68	.68	.68	.68	
Pittsburgh AP													
May 15	.22	.32	.58	.80	.89	.89	.89	.89	.89	.90	.94	.94	
July 10	.28	.41	.54	.67	.97	1.19	1.21	1.21	1.28	1.44	1.50	1.64	
July 14	.30	.36	.37	.38	.39	.41	.47	.52	.53	.56	.57	.57	
July 22	.42	.47	.49	.50	.59	.59	.63	.64	.71	.75	.76	.78	
Aug. 7	.38	.62	.67	.68	.69	.70	.71	.71	.71	.71	.71	.71	
Aug. 21	.22	.37	.42	.43	.47	.51	.52	.56	.76	.76	.76	.76	
Sept. 4	.44	.86	1.10	1.26	1.62	1.69	1.77	1.81	1.83	1.91	1.94	1.95	
Reading													
June 24	.27	.34	.36	.36	.37	.37	.37	.37	.37	.37	.37	.37	
July 7	.14	.25	.36	.40	.45	.54	.56	.57	.57	.58	.58	.58	
July 15	.24	.30	.30	.30	.36	.38	.38	.38	.38	.38	.54	.55	
July 27	.21	.38	.52	.58	.68	.69	.70	.70	.70	.70	.70	.70	
July 31	.31	.48	.55	.62	.87	.95	.99	1.01	1.01	1.06	1.07	1.12	
Sept. 17	.24	.34	.49	.62	.65	.69	.74	.80	.83	.96	1.15		
Sept. 26	.11	.19	.27	.34	.52	.59	.65	.67	.68	.68	.68	.69	
Sept. 27	.17	.32	.38	.40	.45	.58	.65	1.02	1.05	1.08	1.08	1.08	
Scranton Airport													
July 7	.26	.31	.31	.32	.33	.38	.39	.39	.39	.39	.40	.44	
July 8	.16	.31	.32	.35	.37	.37	.37	.37	.37	.37	.37	.37	
Aug. 25	.20	.38	.42	.43	.47	.67	.79	.90	.95	.98	1.03	1.08	
Sept. 7	.25	.48	.51	.53	.71	.80	.90	1.01	1.13	1.20	1.26	1.30	
Sept. 16	.23	.38	.53	.55	.67	.77	.85	1.13	1.20	1.29	1.61	1.77	
Sept. 26	.25	.34	.35	.36	.37	.40	.40	.40	.40	.40	.40	.40	
RHODE ISLAND													
Providence AP													
June 13	.50	.90	1.20	1.32	1.44	1.53	1.60	1.61	1.61	1.62	1.62	1.67	
July 31	.25	.26	.30	.40	.50	.58	.71	.75	.76	.89	.94	.99	
Aug. 13	.26	.44	.50	.54	.56	.64	.86	.96	1.04	1.04	1.14	1.26	
Sept. 26	.19	.35	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38	

EXCESSIVE SHORT DURATION RAINFALL

YEAR 1958

Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
SOUTH CAROLINA													
Charleston													
Jan. 13	0.28	0.37	0.44	0.54	0.64	0.78	0.87	1.07	1.21	1.29	1.36	1.38	
Apr. 6	.30	.54	.72	.80	.89	.93	1.05	1.15	1.20	1.28	1.34	1.38	
Apr. 15	.21	.35	.50	.54	.68	.77	.91	.94	.94	.94	.94	.94	
Apr. 29	.45	.74	1.01	1.21	1.39	1.43	1.45	1.45	1.45	1.45	1.45	1.45	
June 7	.37	.59	.75	.93	1.19	1.34	1.45	1.46	1.46	1.46	1.52	1.53	
June 20	.26	.46	.66	.78	.91	1.16	1.32	1.64	1.90	2.17	2.32	2.34	
June 27	.29	.39	.42	.42	.66	.74	.74	.74	.74	.93	.97	.97	
July 28	.22	.29	.32	.46	.56	.68	.77	.82	1.09	1.12	1.12	1.12	
Aug. 3	.28	.36	.43	.51	.66	.67	.67	.67	.67	.67	.67	.67	
Aug. 25	.45	.52	.58	.66	.74	.81	.89	.90	.91	.92	1.10	1.13	
Sept. 3	.17	.28	.35	.51	.67	.87	1.00	1.07	1.10	1.11	1.12	1.12	
Sept. 12	.36	.57	.71	.80	1.23	1.57	1.78	1.92	1.93	1.93	1.93	1.93	
Sept. 12	.41	.77	.97	1.05	1.08	1.08	1.09	1.10	1.11	1.11	1.11	1.11	
Sept. 22	.22	.44	.48	.50	.50	.50	.50	.50	.50	.50	.50	.50	
Columbia Airport													
May 1	.20	.40	.56	.76	.84	.86	.88	.92	.93	.93	.93	.93	
May 6	.40	.58	.62	.75	.87	.87	.87	.87	1.18	1.19	1.19	1.19	
June 1	.20	.42	.45	.50	.54	.60	.60	.60	.60	.60	.60	.60	
June 22	.25	.50	.69	.90	1.06	1.12	1.12	1.12	1.12	1.12	1.12	1.12	
July 5	.40	.73	1.00	1.05	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	
July 7	.25	.40	.45	.51	.60	.61	.61	.61	.61	.61	.61	.61	
July 9	.18	.31	.37	.55	.65	.67	.68	.70	.72	.73	.74	.74	
July 13	.60	.76	.81	.86	1.17	1.29	1.30	1.30	1.30	1.30	1.30	1.30	
July 30	.48	.90	1.15	1.29	1.30	1.31	1.32	1.40	1.40	1.40	1.40	1.40	
Oct. 2	.38	.76	.81	.84	.87	1.05	1.14	1.20	1.25	1.25	1.27	1.27	
Florence Airport													
Apr. 10	.27	.29	.30	.31	.32	.32	.34	.34	.34	.34	.35	.37	
Apr. 22	.27	.29	.31	.33	.34	.36	.38	.38	.38	.38	.38	.38	
Apr. 28	.20	.30	.34	.35	.35	.35	.37	.37	.37	.37	.37	.37	
May 28	.25	.27	.40	.40	.40	.40	.55	.55	.55	.55	.55	.55	
June 2	.28	.38	.47	.50	.55	.56	.56	.56	.56	.56	.56	.56	
June 16	.20	.31	.42	.45	.45	.45	.45	.45	.45	.45	.45	.45	
June 22	.29	.41	.55	.68	1.21	1.36	1.70	2.13	2.45	2.88	3.08	3.60	
June 26	.23	.35	.39	.47	.49	.59	.60	.60	.66	.67	.68	.71	
July 2	.28	.41	.43	.45	.46	.47	.50	.50	.50	.50	.50	.50	
July 13	.28	.35	.38	.39	.42	.44	.50	.52	.59	.62	.66	.73	
July 17	.25	.31	.34	.34	.37	.39	.39	.39	.39	.39	.39	.39	
July 29	.18	.36	.48	.57	.85	1.20	1.33	1.33	1.33	1.33	1.33	1.33	
Aug. 25	.18	.25	.33	.44	.47	.52	.59	.69	.69	.71	.71	.76	
Greenville Airport													
Apr. 28	.28	.36	.37	.37	.37	.49	.49	.63	.69	.78	.82	.84	
May 2	.22	.34	.47	.52	.55	.59	.65	.66	.67	.69	.70	.75	
May 2	.27	.39	.54	.59	.61	.62	.62	.62	.62	.63	-----	-----	
June 1	.12	.22	.34	.42	.46	.47	.47	.48	.48	.48	.49	.53	
July 7	.21	.36	.39	.53	.68	.82	.93	.99	1.05	1.05	1.05	1.05	
July 17	.18	.29	.35	.35	.36	.37	.37	.37	.37	.37	.37	.37	
July 20	.23	.26	.48	.60	.89	1.21	1.23	1.25	1.25	1.25	1.25	1.25	
July 21	.20	.32	.38	.41	.44	.47	.49	.56	.72	.85	.87	.87	
Aug. 23	.18	.32	.36	.40	.42	.42	.42	.42	.42	.42	.42	.42	
Aug. 24	.19	.30	.40	.46	.56	.65	.66	.67	.67	.67	.67	.67	
Sept. 21	.20	.35	.43	.51	.59	.59	.59	.59	.60	.60	.60	.60	
Spartanburg AP													
Jan. 24	.15	.25	.40	.46	.54	.68	.80	.91	.95	1.02	1.05	1.05	
Apr. 6	.19	.31	.39	.39	.43	.45	.74	.79	.81	.83	.86	.95	
Apr. 28	.33	.60	.85	1.03	1.07	1.07	1.12	1.25	1.25	1.25	1.25	1.25	
Apr. 28	.25	.50	.58	.75	.92	.99	1.03	1.06	1.08	1.08	1.11	1.12	
June 26	.26	.46	.58	.64	.68	.70	.79	.80	.84	.85	.86	.87	
July 8	.28	.48	.68	.88	.99	1.00	1.01	1.01	1.01	1.01	1.55	1.57	
July 9	.19	.32	.36	.38	.43	.47	.47	.47	.72	.76	.77	.77	
July 13	.35	.69	1.15	1.37	1.49	1.64	1.67	1.70	1.73	1.74	1.75	1.75	
July 18	.25	.50	.64	.67	.68	.69	.69	.69	.69	.69	.69	.69	
July 21	.18	.30	.40	.40	.41	.44	.44	.46	.55	.68	.69	.71	
Aug. 2	.27	.50	.60	.66	.71	.75	.76	.76	.76	.76	.76	.76	
Aug. 2	.23	.34	.43	.49	.51	.54	.60	.60	.60	.60	.60	.60	
Aug. 23	.21	.42	.55	.64	.68	.69	.69	.69	.77	.77	.77	.77	
Aug. 24	.32	.50	.67	.72	.79	.81	.81	.84	.84	.84	.85	1.03	
Aug. 24	.20	.31	.39	.40	.44	.47	.54	.59	.62	.64	.65	.66	
SOUTH DAKOTA													
Huron Airport													
July 2	.65	1.10	1.55	1.80	2.03	2.13	2.16	2.17	2.17	2.17	2.17	2.17	
Rapid City Airport													
July 19	.97	1.35	1.39	1.48	1.62	1.76	1.84	1.84	1.85	1.86	1.89	1.95	
Sioux Falls AP													
July 3	.17	.33	.42	.49	.56	.59	.62	.66	.71	.74	.97	1.08	
July 8	.18	.34	.46	.54	.80	.86	.96	.99	1.01	1.01	1.01	1.03	
July 26	.13	.24	.32	.36	.59	.74	.78	.84	.91	.96	.98	1.02	
TENNESSEE													
Bristol Airport													
May 5	.40	.70	.94	1.00	1.05	1.08	1.23	1.25	1.27	1.28	1.33	1.36	
May 25	.25	.40	.45	.50	.55	.58	.60	.60	.65	.70	.70	.70	
June 26	.35	.50	.65	.72	.80	.85	.99	1.04	1.10	1.15	1.19	1.20	
July 16	.20	.40	.53	.55	.55	.55	.58	.62	.65	.65	.66	.66	
July 21	Excessive occurred - clock failure.												
Aug. 1	.30	.50	.67	.92	1.30	1.35	1.37	1.37	1.37	1.37	1.37	1.37	
Aug. 2	.25	.45	.60	.70	.70	.70	.70	.70	.70	.70	.70	.70	
Aug. 15	.25	.45	.55	.61	.64	.64	.64	.64	.64	.64	.64	.64	
Sept. 17	.18	.30	.35	.37	.39	.40	.40	.40	.50	.55	.55	.55	
Chattanooga AP													
Apr. 29	.18	.31	.34	.38	.45	.49	.54	.56	.58	.65	.71	.74	
Apr. 29	.35	.45	.51	.56	.65	.68	.74	.77	.79	.83	.87	.87	
May 11	.21	.36	.46	.52	.64	.75	.75	.75	.75	.83	.84	.84	
June 1	.58	1.09	1.14	1.28	1.48	1.51	1.53	1.70	1.74	1.74	1.75	1.78	
June 15	.24	.40	.59	.69	.72	.72	.72	.72	.72	.72	.72	.72	
July 10	.27	.44	.63	.73	.83	.85	.85	.85	.85	.85	.85	.85	
July 12	.19	.27	.30	.44	.54	.61	.65	.69	.76	.77	.77	.77	
July 21	.27	.39	.53	.64	.76	.83	.87	.91	.97	1.02	1.15	1.78	
July 23	.34	.52	.63	.74	.86	.87	.87	.87	.88	.88	.88	.88	
July 31	.21	.32	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	
Aug. 1	.32	.46	.46	.46	.46	.46	.46	.48	.48	.48	.48	.48	
Aug. 2	.32	.47	.47	.48	.51	.51	.51	.52	.52	.52	.52	.52	
Aug. 9	-----	-----	-----	-----	1.50	1.51	1.51	1.51	1.51	1.51	1.51	1.51	
Aug. 13	.22	.32	.43	.44	.55	.62	.62	.62	.63	.63	.63	.63	
Aug. 23	.28	.45	.63	.70	.78	.81	.81	.82	.83	.84	.86	.88	
Sept. 21	.18	.29	.38	.49	.59	.64	.82	1.12	1.29	1.38	1.52	1.68	

YEAR 1958

Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
TEXAS (Cont'd.)													
Wichita Falls													
Mar. 28		0.25	0.33	0.40	0.43	0.54	0.60	0.66	0.69	0.69	0.69	0.69	0.69
Apr. 20		.21	.43	.66	.70	.74	.78	.81	.91	.97	1.64	1.15	1.17
May 1		.29	.37	.57	.69	.90	1.10	1.34	1.43	1.82	1.96	2.32	2.18
June 19		.25	.45	.51	.55	.62	.67	.71	.74	.75	.75	.75	.75
July 23		.27	.46	.50	.56	.65	.65	.66	.66	.66	.66	.66	.66
UTAH													
Milford Airport							None						
Salt Lake City AP							None						
VERMONT													
Burlington AP													
June 21		.24	.36	.45	.49	.57	.65	.67	.69	.69	.69	.69	.69
July 7		.19	.36	.42	.44	.46	.46	.46	.46	.46	.46	.46	.46
Aug. 8		.23	.32	.41	.41	.48	.64	.65	.66	.66	.67	.67	.69
Oct. 10		.48	.34	.56	.56	.58	.59	.60	.60	.60	.60	.60	.60
Oct. 17		.31	.33	.33	.34	.34	.34	.34	.34	.34	.34	.34	.34
VIRGINIA													
Lynchburg AP													
May 19		.38	.41	.41	.41	.41	.41	.42	.43	.53	.53	.53	.54
June 24		.20	.33	.36	.37	.38	.39	.39	.39	.39	.39	.39	.39
July 6		.28	.45	.48	.49	.54	.57	.58	.60	.60	.60	.60	.60
July 26		.26	.45	.52	.52	.52	.53	.53	.53	.53	.53	.53	.53
Aug. 11		.18	.31	.48	.57	.61	.85	.86	1.09	1.13	1.35	1.37	1.39
Aug. 15		.28	.35	.36	.38	.41	.51	.51	.51	.51	.51	.51	.51
Norfolk Airport													
Jan. 25		.42	.48	.52	.58	.65	.85	.94	.99	1.00	1.02	1.18	1.21
Feb. 27		.36	.39	.41	.42	.42	.42	.42	.46	.46	.47	.47	.54
Mar. 13		.31	.40	.42	.45	.43	.43	.43	.44	.44	.44	.47	.47
Apr. 28		.33	.52	.54	.55	.58	.59	.61	.67	.73	.75	.76	.77
May 6		.31	.40	.46	.51	.60	.71	.77	.82	.84	.90	.92	.93
May 28		.21	.27	.38	.42	.44	.48	.52	.54	.55	.56	.56	.56
June 14		.44	.54	.55	.55	.56	.56	.56	.57	.57	.58	.58	.58
July 15		.22	.37	.38	.43	.44	.45	.46	.46	.46	.46	.46	.46
July 28		.13	.24	.29	.37	.55	.65	.65	.65	.65	.65	.65	.65
July 31		.55	.98	1.09	1.09	1.10	1.45	1.83	2.03	2.04	2.05	2.10	2.11
Aug. 4		.39	.71	.84	.89	1.07	1.11	1.17	1.25	1.32	1.38	1.48	1.48
Aug. 13		.56	.73	.90	1.16	1.35	1.48	1.50	1.53	1.53	1.54	1.55	1.55
Aug. 22		.35	.55	.77	.94	1.05	1.07	1.22	1.44	1.44	1.46	1.46	1.47
Aug. 25		.22	.38	.49	.51	.54	.55	.55	.55	.55	.65	.71	.74
Aug. 25		.20	.38	.48	.51	.54	.82	1.02	1.08	1.14	1.19	1.48	1.66
Nov. 26		.17	.28	.37	.53	.74	1.03	1.08	1.11	1.11	1.12	1.15	1.15
Richmond Airport													
Jan. 25		.20	.30	.36	.39	.56	.62	.65	.71	.73	.73	.73	.73
Apr. 22		.35	.59	.69	.72	.74	.90	.92	.92	.92	.92	.92	1.00
May 25		.25	.43	.58	.66	.86	1.18	1.57	1.92	1.98	2.01	2.03	2.05
June 18		.34	.56	.65	.72	.76	.84	.90	1.02	1.03	1.03	1.03	1.03
June 21		.27	.45	.48	.49	.49	.49	.49	.52	.54	.54	.54	.54
July 24		.36	.59	.66	.68	.70	.70	.70	.70	.70	.70	.70	.70
Aug. 3		.29	.59	.80	1.04	1.38	1.67	1.90	2.11	2.39	2.51	2.73	2.85
Aug. 14		.31	.57	.62	.82	.88	.90	.90	.91	.91	.92	.92	.92
Aug. 20		.20	.37	.48	.57	.58	.59	.63	.63	.63	.63	.63	.63
Aug. 25		.26	.34	.34	.35	.36	.38	.49	.51	.52	.56	.59	.70
Oct. 21		.17	.26	.31	.40	.51	.66	.70	.96	1.10	1.20	1.23	1.30
Roanoke Airport													
May 17		.25	.30	.36	.42	.44	.58	.61	.63	.63	.63	.63	.63
July 5		.29	.37	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38
July 9		.24	.36	.50	.70	.80	.82	.82	.82	.82	.82	.82	.82
Sept. 17		.20	.34	.38	.40	.42	.50	.53	.53	.53	.53	.53	.53
WASHINGTON													
Seattle							None						
Spokane Airport													
July 2		.29	.37	.46	.46	.47	.48	.48	.48	.48	.48	.48	.48
Tatoosh Island							None						
Walla Walla													
May 24		†.36	†.57	†.67	†.72	----	----	1.53	1.59	1.60	1.62	1.62	1.62
Yakima													
May 31		.30	.38	.38	.39	.39	.39	.39	.39	.39	.39	.39	.40
WEST VIRGINIA													
Charleston AP													
Apr. 24		.25	.28	.29	.29	.54	.54	.54	.54	.54	.54	.54	.54
June 13		.27	.34	.37	.40	.44	.50	.55	.60	.62	.64	.67	.67
July 11		.35	.68	.80	.82	.83	.83	.83	.83	.90	.90	.90	.90
July 21		.35	.40	.40	.43	.43	.43	.55	.65	.66	.66	.66	.66
July 23		.45	.60	.66	.68	.68	.68	.68	.68	.68	.68	.68	.68
July 26		.39	.57	.67	.94	1.09	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Aug. 1		.30	.37	.55	.59	.68	.88	.92	.92	.92	.92	1.32	1.32
Aug. 2		.25	.28	.31	.32	.33	.35	.35	.38	.51	.52	.53	.53
Aug. 3		.33	.49	.54	.74	.95	1.37	1.58	1.60	1.60	2.12	2.16	2.31
Aug. 3		.20	.32	.42	.47	.49	.51	.53	.54	.54	.54	.56	.56
Aug. 3		.35	.50	.54	.55	.55	.56	.56	.56	.57	.69	.70	.70
Aug. 8		.70	.90	1.23	1.33	1.61	1.66	1.98	2.09	2.15	2.15	2.32	2.32
Aug. 15		.50	.77	.97	1.03	1.09	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Elkins													
July 7		.26	.41	.58	.65	.73	.78	.78	.78	.81	.88	.91	.92
July 21		.19	.32	.38	.40	.52	.57	.67	.68	.70	.84	1.14	1.16
July 26		.18	.30	.40	.50	.56	.57	.57	.57	.57	.57	.57	.57
July 31		.23	.40	.41	.42	.46	.46	.53	.54	.54	.54	.54	.54
Huntington													
Apr. 5		.25	.28	.30	.32	.35	.39	.45	.50	.52	.56	.66	.69
Apr. 29		.28	.48	.54	.59	.69	.78	.83	.88	.88	.88	.88	.88
May 4		.16	.26	.36	.47	.62	.63	.63	.64	.65	.65	.65	.66
May 17		.25	.39	.44	.44	.45	.49	.54	.54	.54	.54	.54	.54
June 13		.15	.30	.34	.38	.41	.44	.46	.52	.57	.59	.60	.60

† Power failure during this period.

EXCESSIVE SHORT DURATION RAINFALL

YEAR 1958

Station and date	Maximum precipitation in inches (5 to 180 minutes)												
	5	10	15	20	30	45	60	80	100	120	150	180	
WEST VIRGINIA (Cont'd.)													
Huntington (Cont'd.)													
July 7	0.34	0.46	0.48	0.53	0.59	0.60	0.61	0.61	0.62	0.65	0.68	0.68	
July 10	.20	.30	.40	.45	.47	.51	.52	.52	.52	.52	.52	.52	
July 16	.30	.45	.55	.73	.85	1.05	1.39	1.40	1.46	1.47	1.47	1.48	
July 20	.30	.48	.60	.66	.70	.79	.80	.80	1.00	1.15	1.25	1.25	
July 23	.20	.30	.41	.42	.44	.44	.44	.44	.44	.48	.49	.49	
Aug. 3	.31	.42	.55	.63	.84	.90	.92	.92	1.00	1.00	1.00	1.00	
Aug. 11	.25	.30	.36	.37	.38	.39	.39	.40	.40	.40	.40	.40	
Aug. 15	.28	.30	.31	.38	.43	.58	.61	.62	.62	.62	.62	.62	
Aug. 31	.25	.30	.32	.34	.45	.50	.50	.50	.50	.50	.55	.55	
Sept. 17	.17	.33	.35	.38	.40	.41	.41	.41	.41	.41	.41	.41	
Sept. 17	.15	.24	.37	.42	.47	.48	.48	.48	.48	.48	.48	.48	
Parkersburg													
May 22	.26	.31	.33	.34	.35	.37	.38	.42	.53	.53	.53	.53	
June 13	.27	.28	.29	.29	.30	.30	.30	.32	.35	.35	.83	.93	
June 13	.33	.43	.46	.47	.50	.55	.57	.57	.60	.66	---	---	
June 18	.35	.43	.44	.45	.48	.59	.59	.59	.59	.78	.86	.86	
July 6	.43	.70	.90	.97	1.05	1.08	1.08	1.08	1.08	1.08	1.09	1.09	
July 11	.22	.30	.42	.52	.72	.79	.85	1.11	1.32	1.32	1.34	1.34	
July 15	.50	.70	.72	.73	.73	.73	.74	.74	.74	.74	.78	.98	
July 15	.13	.15	.27	.40	.55	.63	.65	.68	.70	.71	---	---	
July 18	.20	.43	.48	.55	.62	.63	.67	.90	1.13	1.22	1.24	1.24	
July 22	.36	.65	.69	.70	.95	1.14	1.17	1.17	1.17	1.17	1.17	1.62	
July 23	.20	.30	.37	.42	.50	.63	.66	.90	1.06	1.07	1.07	1.08	
July 28	.23	.43	.48	.51	.52	.54	.56	.56	.56	.56	.56	.56	
Aug. 3	.20	.40	.48	.60	.80	.97	1.15	1.32	1.42	1.51	1.56	1.66	
Aug. 31	.20	.30	.32	.34	.56	.62	.65	.65	.65	.65	.65	.65	
WISCONSIN													
Green Bay Airport													
June 10	.28	.55	.63	.63	.63	.63	.63	.63	.63	.63	.63	.63	
July 9	.34	.38	.40	.40	.42	.42	.42	.47	.48	.48	.59	.60	
Aug. 10	.27	.40	.45	.49	.53	.54	.57	.57	.57	.62	.65	.66	
Ia Crosse Airport													
Sept. 3	.29	.38	.42	.43	.44	.47	.70	.84	.84	.84	.85	.86	
Nov. 17	.24	.39	.43	.44	.70	.76	.84	.96	.97	.98	1.01	1.13	
Madison Airport													
May 30	.17	.31	.38	.49	.59	.66	.69	.74	.75	.76	.78	.79	
May 30	.22	.34	.42	.52	.67	.80	1.01	1.05	1.23	1.28	1.34	1.36	
May 31	.22	.37	.57	.74	.91	1.18	1.23	1.34	1.40	1.45	1.45	1.45	
June 26	.25	.34	.34	.34	.35	.41	.46	.47	.48	.48	.48	.48	
July 14	.27	.46	.50	.51	.54	.55	.56	.56	.56	.56	.56	.56	
Aug. 6	.20	.26	.36	.38	.39	.39	.39	.39	.39	.39	.39	.39	
Aug. 20	.31	.47	.57	.61	.67	.72	.78	.80	.86	.90	.91	.91	
Milwaukee Airport													
Oct. 9	.20	.35	.50	.68	.94	1.13	1.39	1.49	1.57	1.68	1.81	1.88	
Nov. 17	.30	.54	.68	.76	.83	.85	.90	.94	.98	1.06	1.12	1.14	
WYOMING													
Casper Airport													
Aug. 19	.55	.60	.65	.70	.70	.70	.70	.70	.70	.70	.71	.75	
Cheyenne Airport													
May 19	.20	.30	.37	.39	.42	.46	.46	.46	.46	.46	.46	.46	
July 24	.40	.58	.76	.80	.84	.91	.95	.99	1.02	1.05	1.12	1.12	
Sept. 5	.14	.26	.35	.38	.39	.40	.41	.41	.41	.41	.41	.41	
Lander Airport													
May 22	.60	.95	1.23	1.38	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	
Sheridan Airport													
July 3	.24	.38	.38	.38	.39	.39	.39	.39	.39	.39	.39	.39	
July 9	.20	.32	.36	.38	.39	.39	.39	.39	.39	.39	.39	.39	
July 18	.20	.39	.57	.61	.67	.68	.69	.69	.69	.71	.71	.71	
ALASKA													
Anchorage Airport													
None													
Annette Airport													
Oct. 21	.14	.26	.38	.50	.56	.66	.71	.80	.92	1.03	1.14	1.23	
Oct. 29	.14	.26	.34	.43	.67	.83	1.05	1.36	1.52	1.62	1.79	1.92	
Nov. 1	.36	.44	.47	.49	.53	.59	.64	.73	.88	1.01	1.20	1.28	
Cordova Airport													
None													
Fairbanks Airport													
None													
Juneau Airport													
None													
Yakutat Airport													
None													
PUERTO RICO													
PUERTO RICO (Cont'd.)													
San Juan													
Mar. 29	.20	.34	.48	.52	.57	.68	1.02	1.14	1.21	1.25	1.30	1.34	
May 17	.28	.55	.78	1.07	1.29	1.34	1.37	1.51	1.59	1.59	1.59	1.59	
June 16	.35	.50	.66	.75	.78	.80	.80	1.28	1.34	1.34	1.35	1.35	
July 11	.18	.35	.40	.49	.50	.55	.56	.57	.57	.57	.57	1.04	
July 18	.20	.39	.53	.54	.66	.75	.79	.79	.95	1.15	1.23	1.35	
Aug. 6	.27	.44	.44	.46	.57	.66	.77	.77	.77	.79	.79	.79	
Sept. 6	.26	.51	.71	.91	.94	.95	.95	1.00	1.02	1.02	1.03	1.03	
Sept. 12	.20	.37	.44	.49	.79	.85	.96	1.01	1.06	1.08	1.08	1.08	
Oct. 14	.25	.50	.60	.69	.74	.74	.75	.78	.78	.78	.79	.80	
Nov. 13	.25	.38	.39	.45	.48	.48	.48	.48	.48	.59	.63	.73	
Nov. 18	.29	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	
San Juan Airport													
Jan. 10	.23	.40	.50	.55	.60	.82	.94	1.01	1.02	1.02	1.02	1.07	
Jan. 12	.28	.44	.58	.68	.79	1.05	1.35	1.55	1.57	1.57	1.57	1.57	
Jan. 27-28	.17	.31	.38	.39	.41	.42	.45	.47	.47	.47	.49	.53	
Mar. 23	.26	.45	.50	.57	.63	.78	1.13	1.32	1.32	1.32	1.42	1.52	
Mar. 29	.33	.44	.67	.91	1.30	1.44	1.51	1.60	1.70	1.78	1.82	1.84	
May 2	.28	.42	.44	.46	.51	.54	.56	.68	.72	.75	.79	.87	
May 3	.18	.34	.42	.45	.49	.68	.69	.71	.75	.75	.75	.75	
May 4	.27	.42	.52	.62	.76	.80	.84	.89	.95	1.02	1.06	1.10	
May 5	.20	.31	.35	.38	.45	.52	.57	.65	.77	.86	.90	.92	
May 9	.29	.53	.63	.68	.86	.97	1.04	1.06	1.10	1.12	1.16	1.23	
May 17	.33	.53	.60	.66	.83	1.10	1.20	1.26	1.26	1.26	1.26	1.26	

EXCESSIVE SHORT DURATION RAINFALL

YEAR 1958

Station and date	Maximum precipitation in inches (5 to 180 minutes)												
	5	10	15	20	30	45	60	80	100	120	150	180	
PACIFIC AREA (Cont'd.)													
Ponape (Cont'd.)	0.20	0.38	0.54	0.69	0.80	0.94	1.06	1.17	1.23	1.29	1.42	1.45	*
June 23	Possible excessive; register inoperative.												
July 7	Possible excessive; register inoperative.												
July 14	.20	.34	.45	.61	.80	.93	.97	.99	.99	1.00	1.00	1.01	
July 15	.48	.64	.70	.95	1.33	1.91	2.37	2.50	2.51	2.56	2.65	2.66	
July 22	.45	.80	1.00	1.35	1.79	2.45	2.79	2.89	3.00	3.12	3.17	3.22	
July 23	.25	.42	.60	.70	.89	.91	.92	.93	.98	1.12	1.28	1.60	
Aug. 12	.28	.45	.51	.53	.55	.55	.55	.55	.55	.55	.55	.55	
Aug. 15	.45	.54	.72	.86	.89	.97	1.07	1.42	1.49	1.49	1.49	1.49	
Aug. 17	Possible excessive; register erratic.												
Aug. 26	.23	.39	.48	.54	.59	.63	.67	.76	.87	.99	1.04	1.07	
Sept. 3	.32	.34	.53	.61	.61	.63	.63	.63	.63	.63	.63	.63	
Sept. 7	.50	.85	1.19	1.54	2.11	3.31	3.83	4.00	4.31	4.68	4.86	4.96	
Sept. 19	.17	.31	.44	.49	.52	.62	.79	1.07	1.23	1.28	1.29	1.29	
Oct. 4	.23	.42	.49	.58	.76	.78	.85	.92	.95	.99	1.04	1.04	
Oct. 9	.33	.42	.43	.51	.58	.59	.66	.91	1.13	1.15	1.15	1.15	
Oct. 11	.17	.27	.32	.41	.56	.58	.67	1.02	1.16	1.26	1.41	1.43	
Oct. 12	.24	.43	.61	.63	.63	.63	.63	.63	.63	.63	.63	.63	
Oct. 12	.35	.51	.52	.53	.61	.66	.66	.67	.72	.72	.72	.72	
Oct. 15	.21	.34	.42	.47	.49	.49	.49	.49	.49	.50	.59	.60	
Oct. 16	.21	.33	.42	.45	.50	.53	.69	.81	.94	1.01	1.24	1.35	
Oct. 16	.31	.37	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	
Oct. 17	.29	.58	.70	.77	.89	.95	.96	.97	.97	.97	.97	.97	
Oct. 25	.25	.41	.50	.54	.54	.56	.57	.58	.58	.58	.64	.69	
Oct. 26	.23	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	
Oct. 30	.25	.44	.60	.86	1.05	1.14	1.27	1.57	1.59	1.60	1.60	1.61	
Nov. 10	.25	.46	.58	.63	.64	.64	.64	.98	.98	.98	.98	.98	
Nov. 11	.24	.39	.46	.54	.54	.54	.54	.54	.54	.54	.54	.68	
Nov. 14	.25	.34	.44	.48	.52	.55	.56	.56	.56	.56	.56	.67	
Nov. 21	.25	.49	.65	.88	1.21	1.61	1.78	1.97	2.28	2.30	2.30	2.30	
Nov. 21	.26	.46	.66	.86	1.15	1.34	1.72	1.91	2.09	2.19	2.49	2.59	
Nov. 24	.19	.32	.36	.38	.41	.42	.50	.52	.55	.55	.56	.56	
Nov. 25	.16	.29	.41	.46	.50	.51	.53	.54	.56	.60	.68	.88	
Nov. 26	.18	.33	.44	.52	.69	.90	.97	1.00	1.29	1.40	1.65	1.70	
Nov. 27	.12	.20	.32	.42	.54	.67	.80	1.01	1.11	1.20	1.41	1.52	
Dec. 14	.27	.37	.50	.52	.68	.75	.93	1.16	1.17	1.20	1.20	1.60	
Wake Island AP													
Sept. 15	.23	.38	.41	.46	.48	.53	.59	.62	.62	.70	1.00	1.11	
Oct. 16	.32	.58	.72	.81	.98	1.03	1.24	1.36	1.41	1.46	1.51	1.56	
Nov. 13	.29	.53	.75	.93	1.06	1.25	1.27	1.27	1.27	1.27	1.27	1.27	

YEAR 1958

See reference notes at end of table.

SUNSHINE, AMOUNT AND PERCENT

YEAR 1958

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
MISSOURI (Cont'd.)																										
St. Louis (U)	165	54	209	70	112	31	200	51	312	70	277	62	221	49	310	73	183	49	233	67	172	57	125	42	2522	56
Springfield	167	54	158	52	121	33	197	50	276	63	280	64	207	46	302	72	249	67	259	74	209	68	192	64	2617	59
MONTANA																										
Billings	182	64	93	32	151	41	215	53	368	80	261	56	348	73	349	80	279	74	260	77	95	33	110	41	2711	61
Great Falls	220	79	246	86	324	88	302	74	379	81	305	64	328	69	361	82	277	74	253	75	109	39	158	60	3262	73
Hayden (U)	142	52	101	35	174	47	236	57	365	77	293	61	304	63	384	87	245	65	249	74	99	36	153	59	2745	61
Helena	181	64	120	41	228	62	176	43	374	80	235	50	311	65	366	83	300	80	281	83	132	47	89	33	2793	63
Missoula	113	40	81	28	217	59	176	43	347	73	246	52	357	74	354	81	256	68	235	70	100	36	69	26	2551	57
NEBRASKA																										
Lincoln (U)	167	56	172	58	191	52	232	58	319	71	309	69	271	59	340	80	284	76	318	92	185	62	172	60	2960	66
North Platte	185	62	114	38	118	32	177	44	280	62	271	60	255	56	347	81	260	69	271	79	207	69	168	58	2653	59
Omaha	150	51	190	64	171	46	231	58	285	63	287	63	252	55	308	72	272	73	298	87	191	65	195	68	2830	64
Valentine	199	68	178	60	171	46	212	53	337	74	287	62	315	68	366	85	284	76	286	83	197	67	193	69	3025	68
NEVADA																										
Ely	204	67	144	48	209	56	280	70	366	83	391	88	358	79	306	72	324	87	295	85	220	73	235	80	3332	75
Las Vegas	251	81	208	68	238	64	324	82	389	89	430	98	422	95	371	89	340	91	315	90	250	81	273	90	3811	86
Primm	211	70	219	73	299	81	355	89	431	97	377	84	409	90	397	94	348	93	316	91	228	76	219	75	3809	86
Winnemucca	111	37	80	27	140	38	211	53	323	72	245	54	312	68	322	75	301	80	280	76	157	53	146	51	2628	59
NEW HAMPSHIRE																										
Concord	124	42	150	51	146	39	220	55	231	51	261	57	234	50	310	72	203	54	189	55	149	51	161	58	2378	53
Mt. Washington Obs.	79	27	91	31	133	35	173	42	132	28	161	34	107	22	145	33	112	29	142	41	67	23	97	34	1439	32
NEW JERSEY																										
Atlantic City (U)	159	52	173	58	172	46	231	58	244	55	311	70	319	70	265	62	308	83	205	59	192	64	217	73	2796	63
Trenton (U)	177	59	181	60	187	50	257	65	268	60	293	65	227	50	236	56	248	66	198	57	177	59	178	62	2627	59
NEW MEXICO																										
Albuquerque	218	70	203	66	235	63	274	70	320	74	363	84	333	75	313	75	237	64	233	66	244	79	266	87	3239	73
NEW YORK																										
Albany	127	43	145	49	148	40	241	60	221	49	271	59	262	57	310	72	173	46	164	48	129	44	145	51	2336	52
Binghamton	81	27	124	42	136	37	236	55	245	54	283	62	233	50	314	73	175	47	171	50	110	37	146	51	2254	51
Buffalo	88	30	95	32	141	38	277	69	331	73	315	69	293	63	333	77	199	53	199	58	138	47	139	49	2548	57
New York (U)	147	49	165	55	191	51	246	62	343	54	297	66	244	53	294	69	253	68	205	59	173	58	193	67	2651	59
Rochester	120	41	126	43	160	43	262	65	317	70	324	71	323	69	358	83	175	47	220	64	147	50	145	52	2677	58
Syracuse	100	29	68	23	104	28	221	55	214	47	286	62	255	56	302	70	153	41	140	41	57	19	112	40	1997	45
NORTH CAROLINA																										
Asheville (U)	136	44	179	59	113	30	179	46	220	51	314	72	236	53	239	57	273	73	227	65	210	68	182	60	2508	56
Cape Hatteras (R)	175	56	---	---	188	51	---	---	301	69	249	57	357	81	---	---	---	---	181	52	151	49	164	54	---	---
Charlotte	187	59	204	67	170	46	212	54	278	64	307	71	270	61	262	63	294	79	248	71	191	62	195	64	2818	63
Greensboro	224	72	209	68	190	51	234	60	294	69	327	75	328	74	302	72	312	84	257	74	204	66	212	70	3093	70
Raleigh	220	71	206	68	177	48	177	45	240	55	252	58	328	80	273	65	281	75	228	65	211	69	209	69	2802	64
Wilmington	204	65	231	75	197	53	237	61	294	68	277	64	364	83	280	67	260	70	217	62	196	63	152	50	2909	65
NORTH DAKOTA																										
Bismarck	143	51	156	54	174	47	236	58	377	81	255	54	293	61	323	73	276	73	230	68	136	48	124	46	2723	61
Devils Lake (U)	120	43	207	72	204	55	219	53	356	76	322	67	319	66	243	55	236	63	226	67	128	46	131	50	2711	59
Grand Forks	112	40	210	73	204	55	255	62	364	78	264	56	297	62	290	66	204	54	239	71	124	44	121	45	2684	59
Williston (U)	136	48	108	63	158	43	227	55	378	80	309	64	294	61	314	71	202	54	197	59	143	51	174	67	2640	61
OHIO																										
Cincinnati Obs.	118	39	144	48	78	21	179	45	297	67	281	63	296	62	329	78	256	68	265	77	167	55	171	58	2581	62
Cleveland	39	20	90	30	102	28	247	62	329	73	276	61	207	45	276	65	173	46	193	56	118	40	108	38	2178	47
Columbus	115	38	138	46	121	33	203	51	280	63	244	54	188	41	310	73	232	62	255	74	152	53	129	44	2367	53
Dayton	125	42	168	56	136	37	243	61	324	73	301	67	218	48	328	77	213	57	275	80	157	53	149	51	2637	59
Sandusky (U)	115	39	154	52	147	40	400	71	361	80	326	72	306	67	342	79	251	67	255	74	174	59	142	50	2973	63
Toledo	151	51	156	52	117	32	256	64	358	79	285	63	279	61	321	75	220	59	263	76	129	44	144	50	2679	60
OKLAHOMA																										
Oklahoma City	180	58	141	46	135	36	222	57	239	55	328	75	348	78	326	78	218	59	210	60	199	64	165	54	2711	61
Tulsa	209	67	127	42	129	35	183	46	246	56	358	82	314	71	264	63	177	48	216	62	200	65	182	60	2605	59
OREGON																										
Portland	78	27	81	28	152	41	193	48	303	66	208	44	362	76	359	82	199	53	208	61	76	26	66	24	2285	51
Roseburg	69	24	47	16	156	42	154	38	297	65	189	41	406	87	372	86	236	63	176	51	67	23	57	20	2226	50
PENNSYLVANIA																										
Harrisburg	148	49	181	60	185	50	266	67	260	58	277	62	261	57	295	69	256	69	199	57	150	50	173	60	2651	60
Philadelphia	148	49	169	56	169	46	258	65	259	58	301	67	239	52	257	61	277	74	193	56	170	57	185	64	2625	59
Pittsburgh (U)	72	24	83	28	86	23	206	52	232	52	162	36	96	21	97	23	109	29	161	47	117	39	82	28	1503	34
Pittsburgh	76	25	90	30	83	22	228	57	284	64	272	60	205	45	286	67	189	51	199	58	126	42	116	40	2154	48
Reading (U)	130	43	158	53	148	40	272	68	247	55	279	62	251	55	274	64	237	63	185	54	146	49	142	49	2469	55
Scranton	73	25	102	34	91	25	237	59	282	63	249	55	239	52	304	71	200	53	177	52	124	42	156	54	2234	49
RHODE ISLAND																										
Providence	148	50	166	56	170	46	225	56	238	53	293	64	220	48	265	62	217	58	205	60	162	55	164	57	2473	55
SOUTH CAROLINA																										
Charleston (U)	171	54	210	68	173	47	247	63	366	85	323	76	328	75	296	72	266	72	216	61	200	64	146	47	2939	66
Columbia	198	63	236	77	218	59	265	68	236	55	269	62	248	56	247	60	245	66	246	70	224	72	191	62	2823	64
Greenville	202	64	225	73	163	44	202	51	274	63	268	62	248	56	280	67	277	75	243	69	191	62	165	54	2738	62
SOUTH DAKOTA																										
Hot Springs	153	53	191	65	209	56	249	62	382	83	327	70	334	71	371	85	298	79	253	74	179	62	169	61	3115	70

SUNSHINE, AMOUNT AND PERCENT

YEAR 1958

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
UTAH																										
Salt Lake City	174	58	149	50	258	70	291	73	401	90	451	90	414	91	378	88	314	84	294	88	156	52	146	51	3426	76
VERMONT																										
Burlington	112	39	116	40	138	37	221	55	258	56	268	58	260	55	312	72	159	42	168	49	133	46	152	55	2297	51
VIRGINIA																										
Lynchburg	199	65	175	58	141	33	198	50	237	54	292	66	261	58	264	63	275	74	227	65	188	62	164	55	2621	59
Norfolk	215	70	185	61	182	49	203	51	235	54	250	57	222	50	210	50	308	83	204	59	189	61	178	59	2581	58
Richmond	175	57	170	56	118	32	200	51	228	52	278	63	271	60	247	59	267	72	196	56	173	57	155	52	2478	56
Washington Nat'l. Airport	171	56	164	54	155	42	226	57	230	52	289	65	252	56	249	59	284	76	233	67	192	64	176	60	2621	59
WASHINGTON																										
Seattle (U)	42	15	75	26	230	62	190	47	315	67	224	47	386	80	337	77	206	55	164	48	97	35	61	24	2327	52
Spokane	48	17	71	25	250	68	261	64	390	83	319	67	413	86	403	91	250	66	224	67	76	27	22	8	2727	61
Tatoosh Island (R)	42	15	56	19	154	42	215	52	265	56	226	47	231	48	259	58	201	53	163	49	90	32	43	17	1945	43
Walla Walla (U)	82	29	152	52	239	65	200	49	364	78	364	77	445	94	388	89	264	70	270	80	104	36	48	18	2920	65
WEST VIRGINIA																										
Parkersburg (U)	88	29	94	31	52	14	164	41	241	54	238	53	231	51	280	66	240	64	240	69	171	57	119	41	2158	48
WISCONSIN																										
Green Bay	132	46	180	61	200	54	248	61	333	73	267	57	307	65	276	64	187	50	170	50	126	44	119	39	2545	57
Madison	153	53	224	76	191	52	228	57	349	77	232	50	280	60	323	75	247	66	222	65	128	44	140	50	2717	68
Milwaukee	143	49	203	69	201	54	237	64	398	88	292	64	325	70	315	73	246	66	216	63	147	50	121	43	2864	63
WYOMING																										
Cheyenne	250	84	191	64	216	58	222	56	298	66	330	73	290	63	326	76	295	79	258	75	188	63	142	49	3006	67
Lander	273	93	198	67	230	62	255	63	347	76	347	76	310	67	327	76	278	74	271	79	175	60	143	51	3154	71
Sheridan	196	68	153	52	161	44	227	56	352	77	271	58	318	68	344	79	277	74	274	81	164	57	139	51	2876	64
ALASKA																										
Anchorage	45	22	126	50	212	58	314	71	241	44	298	52	182	32	139	28	123	32	154	50	47	22	27	16	1908	42
Juneau	45	20	89	34	195	53	204	47	151	29	279	51	155	29	---	---	---	---	47	15	21	9	47	23	---	---
Nome	48	29	134	56	88	24	158	35	200	35	---	27	236	38	122	24	84	21	80	27	69	36	53	41	---	33
PUERTO RICO																										
San Juan	224	68	191	59	290	78	276	73	235	58	122	31	202	50	260	66	257	70	245	68	238	70	271	79	2811	64
PACIFIC AREA																										
Guam (Taguac) (R)	316	88	*297	91	345	92	*337	90	355	90	---	87	338	85	319	82	---	---	---	---	182	53	234	67	---	---
Hilo, T.H.	221	64	182	57	153	41	131	35	100	25	152	38	119	29	102	26	92	25	117	32	95	27	170	50	1634	37
Honolulu, T.H.	215	63	130	68	250	67	284	75	269	66	316	79	283	69	289	73	290	79	232	64	243	73	220	65	3021	70
Lihue, T.H.	207	61	211	66	234	63	199	53	194	47	314	78	252	61	204	51	302	82	200	55	191	57	191	57	2699	61
Majuro	---	---	---	---	---	---	195	---	---	---	---	---	---	---	215	56	245	67	150	40	147	41	166	46	---	---
Ponape	---	---	---	---	---	---	---	119	31	---	---	33	161	42	194	51	184	50	168	45	93	26	201	55	---	---

Data from airport unless otherwise specified.
 "U" indicates Urban, "R" indicates Rural, sites.
 * Estimated
 † Data from airport from March 8.

ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature				Precipitation				Relative humidity				Wind				Number of days																			
	Averages		Extremes		Total	Snow, Sleet		Greatest in 24 hrs	Relative humidity		Prevailing direction	Speed	Direction	Fastest mile	Average sky cover sunrise to sunset	Sunrise to sunset		Heavy fog	Snow, Sleet, Hail	Thunderstorms	90° and above	32° and below														
	Daily maximum	Daily minimum	Monthly	Highest		Lowest	Date		Greatest in 24 hrs	Date						Total	Greatest in 24 hrs						Date	Total	Greatest in 24 hrs	Date	7:00 a. m. to 7:00 p. m.	7:00 p. m. to 7:00 a. m.	Clear	Partly Cloudy	Cloudy					
ALABAMA																																				
Birmingham	71.9	50.3	61.1	97	3	3290	42.02	3.33	20-21	Dec. 13	5.5	3.3	61	7.7	N	45	SW	28	Feb.	60	6.1	94	114	157	113	3	44	3	68	4	72	0				
Mobile	74.6	55.8	65.2	94	2+	2164	69.89	3.52	21-22	Feb. 12	1.4	1.4	70	10.1	N	--	--	--	--	--	--	6.1	100	106	159	141	1	87	29	49	0	32	0			
Montgomery	74.6	53.4	64.0	98	13	2604	47.93	7.12	6-7	Dec. 14	T	T	79	8.6	NW	43	SW	31	Jan.	61	6.0	102	108	155	112	0	45	23	86	1	48	0				
ARIZONA																																				
Flagstaff	61.6	31.7	46.7	92	12+	6720	21.24	1.80	28-29	Nov. 13-16	74.4	13.0	13.0	--	--	--	--	--	--	--	--	4.2	175	99	91	79	21	53	2	3	6	196	3			
Phoenix	85.5	59.8	72.7	118	11	30	1268	8.12	1.52	12	0	0	46	57	36	27	6.0	E + SSW	ENE	10	93	3.5	207	90	68	44	0	26	1	161	0	2	0			
Prescott	71.2	41.9	56.6	103	11	9	4106	13.17	1.18	19	10.4	3.5	15-16	--	39	--	--	--	--	--	--	8.9	SSW	51	SW	22	79	4	52	4	57	1	125	0		
Tucson	82.3	55.5	68.9	111	11	24	1623	12.60	3.93	29	6.4	6.4	16	45	55	32	26	7.9	SE	44	E	31	3.8	188	110	67	56	1	48	0	141	0	13	0		
Winslow	72.6	42.2	57.4	106	12	11	4194	7.05	.87	14-15	8.6	3.1	3-4	45	57	33	25	8.2	WSW	+48	WSW	3	4.3	174	98	93	71	3	43	2	94	0	126	0		
Yuma	90.6	61.9	76.3	119	9	30	17	595	4.02	1.34	119-20	0	0	38	48	29	19	7.4	N	38	S	26	2.7	254	63	48	19	0	9	0	187	0	1	0		
ARKANSAS																																				
Fort Smith	70.7	49.5	60.1	98	30+	3688	48.74	3.30	25	Dec. 12-13	12.2	4.8	12-13	81	87	59	61	8.2	ENE	44	W	27	5.8	111	108	146	105	4	59	13	78	7	79	0		
Little Rock	70.2	51.8	61.0	97	18	12	3392	55.27	3.82	25-26	9.4	4.2	12-13	77	82	57	59	9.0	S	40	W	27+	5.9	112	102	151	103	3	52	20	69	5	61	0		
Texarkana	72.5	53.4	63.0	99	13	16	2907	53.75	5.09	26	2.4	1.5	9-10	--	86	--	--	7.7	NE	--	--	--	--	--	--	--	97	1	51	22	82	1	51	0		
CALIFORNIA																																				
Bakersfield	78.4	53.7	66.1	110	28	30	1879	8.61	.90	Apr. 1	0	0	0	61	71	54	40	6.2	WNW	+40	WNW	3	4.0	188	81	96	45	0	4	18	107	0	7	0		
Bishop	75.7	38.3	57.0	104	13+	5	3846	4.76	1.10	3	1.0	1.0	Apr. 2	--	31	21	--	--	--	--	--	--	3.8	197	90	78	30	1	14	0	97	0	143	0		
Blue Canyon	59.0	43.5	51.3	87	6+	15	5321	73.37	4.08	2-3	340.5	28.4	2-3	--	51	--	--	8.2	ENE	64	SSW	24	4.8	163	73	129	100	50	29	55	0	19	91	0		
Burbank	77.6	53.5	65.6	103	16	32	17	1230	15.58	2.51	19	T	T	67	73	52	44	4.0	S	+35	W	1	4.1	188	97	80	41	0	8	23	54	0	1	0		
Eureka (U)	59.7	48.9	54.3	85	6	32	16	3817	40.87	2.25	11-12	0	0	--	--	--	--	6.6	+ N	43	SW	24	4.6	7.4	57	85	223	116	0	10	52	0	0	1	0	
Fresno	77.0	50.4	63.7	104	11	27	16	2287	16.47	1.63	21-22	0	0	66	81	57	40	5.8	NW	29	SW	6+	8.2	4.0	200	62	103	54	0	10	33	105	0	16	0	
Los Angeles	74.6	57.4	66.0	103	16+	41	17	772	15.43	3.49	19	0	0	72	76	56	57	7.2	WSW	+55	SW	3	4.8	135	132	98	40	0	5	46	9	0	0	0		
Los Angeles (U)	76.6	57.5	67.1	104	16	40	17	849	17.49	2.32	19	0	0	72	74	46	53	6.2	+ W	38	E	7	4.1	182	112	71	39	0	11	13	32	0	0	0		
Mount Shasta (R)	63.6	39.0	51.3	95	27	14	17+	5281	52.11	4.44	23-24	143.0	29.5	57	77	61	51	--	--	--	--	--	5.2	158	58	149	102	22	23	7	20	1	109	0		
Oakland	68.0	50.9	59.5	97	26	33	17	2220	26.11	1.67	23-24	0	0	79	83	70	58	7.9	W	+43	SSW	24	5.1	136	112	117	68	0	4	15	5	0	0	0	0	
Red Bluff	76.4	52.1	64.3	108	6+	28	17	2299	29.86	2.19	Feb. 15	T	T	59	68	51	37	9.4	SSE	60	SE	24	7.8	4.7	165	75	125	80	0	16	12	102	0	9	0	
Sacramento (U)	75.1	50.9	63.0	104	30	30	17	2106	27.28	2.66	18-19	0	0	70	82	62	47	8.6	SW	42	SE	24	8.2	4.4	186	58	121	66	0	7	36	79	0	4	0	
Sandberg (R)	64.8	48.4	56.6	96	11+	21	16	3960	16.92	2.39	Feb. 18-19	32.5	8.1	6-7	--	46	--	--	14.8	NNW	+55	SSW	Apr. 3	3.6	212	69	84	53	10	7	53	11	1	37	0	0
San Diego	73.1	57.8	65.5	98	17	41	17	805	10.93	1.39	3-4	0	0	77	79	60	59	6.3	NE	37	S	Feb. 24	7.2	4.3	170	123	72	46	0	8	3	5	0	0	0	
San Francisco	68.7	51.4	60.1	96	27	36	17	2045	32.29	2.66	2-3	0	0	80	85	70	61	10.1	WNW	48	WSW	24	5.1	155	84	126	70	0	4	16	8	0	0	0		
San Francisco (U)	64.6	52.9	58.8	92	26	43	16+	2332	28.60	2.45	22-23	0	0	--	81	--	--	8.2	+ W	40	SW	24	67	--	--	--	77	0	4	--	2	0	0	0	0	
Santa Maria	70.0	47.3	58.7	96	6	25	17	2383	18.33	1.53	24-25	0	0	85	87	61	61	5.7	WNW	+33	SE	20	4.6	161	108	96	48	0	8	86	7	0	10	0	0	
COLORADO																																				
Alamosa	60.7	25.3	43.0	90	11+	32	21	7988	5.01	.56	18	24.2	4.9	--	74	42	37	--	--	--	--	--	4.9	123	156	86	63	7	42	15	2	15	223	29	0	0
Colorado Springs	64.1	35.8	50.0	95	13+	1	28	5890	18.45	1.66	8-9	37.9	4.5	64	67	40	41	9.6	N	+40	NNW	24	5.4	118	115	132	105	14	77	44	23	13	174	1	0	0
Denver	64.3	38.4	51.4	96	13	5	28	5609	18.80	1.98	7-8	69.4	5.6	60	66	38	37	11.0	SSW	45	NW	20	6.9	5.4	128	114	123	99	22	49	21	30	19	150	3	0
Grand Junction	67.0	42.3	54.7	102	12	10	23+	5060	6.31	.90	12-13	15.2	2.6	46	55	37	30	8.8	ESE	56	SW	25	7.2	4.8	159	94	112	62	7	24	9	71	4	126	0	

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature				Precipitation				Relative humidity			Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Averages		Extremes		Total	Greatest in 24 hrs	Snow, Sleet		Relative humidity			Prevailing direction	Fastest mile			Percent of possible sunshine	Sunrise to sunset			Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Daily maximum	Daily minimum	Monthly	Highest			Date	Lowest	Date	Total	Greatest in 24 hrs		Date	Speed	Direction		Date	Clear	Partly cloudy	Cloudy	Precipitation 0.1 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
COLORADO (Cont'd.)	68.2	38.5	53.4	101	Aug. 14	-12	Nov. 28	5254	9.66	1.41	8-9	May	18.6	4.0	Nov. 27	63	74	42	37	8.0	SE	49	N	22	73	5.3	124	112	129	88	6	52	15	61	12	159	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature				Precipitation				Relative humidity			Wind				Sunshine			Number of days				Max temp		Min temp												
	Averages		Extremes		Snow, Sleet		Degree days	Snow, Sleet		Relative humidity		Wind		Sunrise to sunset	Sunrise to sunset		Snow, Sleet, Hail	Thunderstorms	Heavy fog	90° and above	32° and below	32° and below	Zero and below														
	Daily maximum	Daily minimum	Monthly	Date	Lowest	Date		Total	Greatest in 24 hrs	Date	Total	Greatest in 24 hrs	Direction		Speed	Fastest mile								Percent of possible	Average sky cover	Clear	Partly cloudy	Cloudy	Precipitation								
IDAHO (Cont'd.)	61.9	36.4	49.2	99	Aug. 7	-2	Jan. 19+	6238	9.25	.85	Jun. 13-14	24.0	3.7	17-18	63	74	54	45	10.9	SW	55	W	31	70	5.8	113	105	147	89	7	28	17	32	18	156	2	
Pocatello																																					
ILLINOIS	66.1	49.0	57.6	97	Jun. 13+	2	Feb. 17	4349	43.33	2.98	10-11	16.3	5.2	27-28	Nov. 12	82	60	--	8.0	N	40	NW	Nov. 17	62	6.0	99	120	146	107	4	47	4	43	24	81	0	
Cairo (U)	57.9	41.5	49.7	94	Aug. 30	-8	Dec. 9+	6251	26.35	2.25	8-9	25.5	5.8	7-8	Dec. 7	73	78	57	60	10.1	SW	49	SW	17	61	6.0	108	97	160	102	6	27	11	11	52	118	12
Chicago	58.3	38.8	48.6	96	Aug. 30	-15	Feb. 17	6574	24.45	2.13	31	26.7	8.5	21	Jan. 22	76	81	58	60	10.1	W	43	W	22	62	6.0	103	102	160	90	8	42	22	10	60	138	24
Moline	59.1	40.4	49.8	94	Jun. 30	-12	Feb. 17	6208	31.45	3.17	Jun. 1	18.9	8.6	20-21	Nov. 7	76	81	58	60	10.7	S	60	SW	9	58	6.0	104	99	162	98	7	41	18	7	51	127	17
Peoria	61.2	41.7	51.5	95	Aug. 8	-9	Feb. 17	5767	30.56	4.73	9-10	9.1	2.5	27-28	Nov. 7	83	57	60	10.9	SSW	55	N	31	64	6.0	106	94	165	104	3	49	13	12	45	125	10	
Springfield																																					
INDIANA	64.0	43.8	53.9	94	Aug. 14	-3	Feb. 17	5177	42.22	2.44	25-26	16.3	6.9	28	Nov. 10	79	82	57	62	8.6	NW	58	NW	10	66	6.1	101	94	170	110	5	43	14	29	31	109	2
Evansville	57.8	38.8	48.3	90	Aug. 30	-12	Dec. 10	6552	34.00	2.36	10-11	20.7	4.5	Dec. 8	78	83	59	66	10.2	SW	51	SW	22	55	6.5	81	97	187	137	3	40	16	1	54	138	13	
Ft. Wayne	59.5	40.8	50.2	90	Aug. 30	-6	Dec. 10	6038	38.11	2.84	Jul. 11	11.9	4.6	28	Nov. 8	82	85	63	68	11.4	SW	59	NW	10	61	6.6	83	83	199	123	2	49	19	2	45	122	9
Indianapolis	57.3	38.4	47.9	91	Aug. 30	-10	Dec. 15+	6681	29.99	1.70	29	83.5	7.0	1-2	Feb. 1	79	82	60	65	11.0	SSW	40	NW	31	--	6.7	84	92	189	141	30	38	16	4	55	138	14
South Bend																																					
IOWA	59.5	39.2	49.4	94	Aug. 8	-18	Feb. 17	6343	31.86	2.10	29-30	23.0	7.8	21-22	Jan. 5	77	82	59	62	10.4	NW	43	NW	5	69	5.8	109	107	149	92	6	50	12	12	55	137	23
Burlington	59.0	39.1	49.1	96	Aug. 28	-20	Feb. 17	6493	28.84	5.14	1-2	22.4	3.5	25	Jan. 12	76	82	60	60	11.4	NW	61	SE	1	61	6.1	98	108	159	87	8	36	17	16	60	138	22
Des Moines	55.4	35.9	45.7	93	Aug. 3	-18	Dec. 9	7360	26.07	2.11	5	25.1	4.8	7-8	Dec. 8	--	80	58	61	--	--	--	--	--	--	5.9	104	112	149	97	11	38	24	2	70	153	24
Dubuque	60.0	37.4	48.7	99	Jun. 29	-19	Feb. 16	6660	18.30	1.70	4-5	20.3	4.7	7-8	Mar. 1	73	80	56	52	11.6	NW	65	N	8	69	5.7	121	103	141	77	8	32	24	31	61	146	23
Sioux City	56.8	35.4	46.1	93	Aug. 3	-21	Dec. 9	7260	25.63	2.55	5-6	16.4	3.8	7-8	Dec. 1	72	81	58	60	12.2	--	--	--	--	--	--	--	--	--	75	7	33	21	5	66	158	28
Waterloo																																					
KANSAS	62.8	43.2	53.0	98	Aug. 14	-2	Dec. 13	5518	31.73	4.11	4	36.6	4.8	4-5	Mar. 1	73	80	58	56	7.1	TS	40	N	10	67	5.4	131	92	142	104	14	62	10	36	41	118	2
Concordia (U)	65.2	42.5	53.9	99	Aug. 28+	-6	Dec. 13	5349	22.23	1.86	24-25	28.9	6.6	12	Dec. 12	75	83	57	54	14.3	SSE	61	NW	5	62	5.5	123	105	137	85	10	57	18	50	35	123	2
Dodge City	63.7	35.8	49.8	104	Jun. 30	-3	Mar. 14	6274	15.99	1.25	15-16	52.1	5.8	6-7	Mar. 6	84	54	54	78	11.4	SSE	48	NW	5	--	5.4	138	96	131	95	19	60	39	41	40	176	4
Goodland	63.8	42.7	53.3	100	Aug. 28	-2	Feb. 16	5378	38.73	2.53	10-17	33.7	5.9	20-21	Nov. 1	78	83	59	60	10.6	S	81	N	11	56	6.0	110	91	164	107	9	55	16	33	40	128	4
Topeka	66.1	45.4	55.8	103	Jun. 9	5	Dec. 14+	4907	31.66	3.55	3-4	33.5	5.6	12-13	Jan. 1	76	82	56	55	12.6	S	52	NE	29	65	6.0	104	96	165	97	11	51	19	52	33	112	0
Wichita																																					
KENTUCKY	62.3	43.3	52.8	91	Jul. 4	-6	Feb. 17	5331	43.96	2.67	21-22	14.9	3.4	28	Nov. 1	82	86	61	68	10.2	S	--	--	--	--	6.3	91	95	172	137	3	51	15	8	38	107	2
Lexington	65.1	44.7	54.1	97	Jul. 4	-3	Feb. 17	4886	39.83	2.36	20	20.6	6.6	13	Mar. 1	79	84	56	62	9.5	NW	56	SE	5	58	6.1	101	95	169	122	4	41	13	40	29	100	1
Louisville																																					
LOUISIANA	77.2	56.4	66.8	98	Aug. 6	20	Feb. 13	1965	45.53	2.99	23	1.0	1.0	12	Feb. 1	83	88	58	64	7.9	E	--	--	--	--	6.4	84	111	170	99	1	78	34	101	0	28	0
Baton Rouge	76.7	59.8	68.3	97	Aug. 2+	25	Feb. 14+	1750	59.19	5.49	20-21	1.2	1.2	12	Feb. 1	82	85	60	65	8.4	N*36	S	17	--	6.4	82	108	175	110	1	59	31	92	0	16	0	
Lake Charles	75.8	61.6	68.7	97	Aug. 29	28	Feb. 13	1597	56.48	2.77	20	1.3	1.3	12	Feb. 1	80	83	62	67	6.5	--	27	NE	23	56	5.7	104	128	133	126	1	60	6	77	0	8	0
New Orleans (U)	75.6	59.6	67.6	95	Aug. 1+	25	Feb. 13	1708	51.56	3.17	Jan. 20	2.0	2.0	12	Feb. 1	80	83	61	66	9.9	SSE	44	N	23	--	5.9	96	130	139	122	1	66	21	65	0	9	0
New Orleans	73.9	54.2	64.1	98	Aug. 13+	17	Dec. 15	2629	46.75	4.04	26	T	T	13+	Dec. 1	77	85	57	58	9.2	S	--	--	--	6.6	6.1	101	104	160	92	0	51	21	94	0	38	0
Shreveport																																					
MAINE	47.2	29.6	38.4	87	Jul. 23	-22	Dec. 21	9625	37.82	4.14	18-19	134.7	10.0	13-15	Jan. 1	82	80	72	72	11.1	WSW	*63	W	May 9	--	7.1	67	84	214	161	37	19	17	0	88	191	41
Caribou	54.0	34.1	44.1	92	Jul. 2	-16	Feb. 18	7718	42.42	1.89	23-26	96.5	10.7	7-8	Jan. 1	85	83	62	76	11.5	S	45	N	2	51	6.4	92	96	177	125	22	18	44	1	49	159	15
Portland																																					
MARYLAND	63.4	48.1	55.8	94	Jul. 31	6	Feb. 17	4550	50.44	4.14	19-20	---	---	---	Feb. 1	--	--	--	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	22	19	73	0
Baltimore (U)	62.2	44.2	53.2	94	Jul. 31	3	Feb. 17	5139	45.14	3.18	19-20	34.0	15.5	15-16	Feb. 1	--	--	--	66	12.0	WNW	63	NE	25	59	5.9	109	109	147	118	8	32	29	18	26	101	0

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature					Precipitation				Relative humidity			Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	Averages			Extremes		Degree days	Total	Greatest in 24 hrs	Snow, Sleet		1:00 a. m.	7:00 a. m.	1:00 p. m.	7:00 p. m.	Average hourly speed	Prevailing direction	Speed	Fastest mile		Percent of possible sunshine	Average sky cover	Clear	Partly cloudy	Cloudy	Precipitation 01 inch or more	10 or more	Thunderstorms	Heavy fog	Max temp 90° and above	Min temp 32° and below	Zero and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Daily maximum	Daily minimum	Monthly	Highest	Lowest				Date	Greatest in 24 hrs								Total	Greatest in 24 hrs													Date	Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature				Degree days	Precipitation				Relative humidity		Wind				Number of days				Max. temp		Min. temp													
	Averages		Extremes			Total	Greatest in 24 hrs.	Snow, Sleet		1:00a E. S. J.	7:00a E. S. J.	7:00p E. S. J.	Average hourly speed	Prevailing direction	Speed	Fastest mile		Percent of possible sunshine	Sunrise to sunset		Precipitation 0.1 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	90° and above	32° and below	Zero and below								
	Daily maximum	Daily minimum	Monthly	Highest				Date	Lowest							Date	Greatest in 24 hrs.		Total	Greatest in 24 hrs.								Date							
MONTANA (Cont'd.)	Butte	54.3	26.4	40.4	89	11.47	1.22	23-24	64.1	11.0	Apr. 26	---	---	---	7.4	SSE	*40	NW	24	6.6	82	93	190	116	20	48	4	0	47	226	22				
	Glasgow	55.2	31.5	43.4	103	7.07	.76	9	32.4	4.5	22-23	---	---	---	---	---	---	---	---	---	6.3	91	105	169	78	13	29	9	30	83	175	26			
	Great Falls	57.0	36.6	46.8	95	16.14	1.45	3-4	80.9	6.9	3-4	Nov. 23	58	65	49	43	14.9	SW	75	SW	Dec. 3	73	6.5	77	111	177	114	27	26	11	16	41	128	13	
	Havre (U)	57.1	32.8	45.0	97	11.15	1.26	2-3	56.6	7.0	24	Nov. 24	75	55	---	8.2	W	49	SW	May 12	61	6.1	90	128	147	86	20	15	6	28	62	165	27		
	Helena	57.0	32.3	44.7	95	12.91	1.22	4-5	52.4	6.2	12-13	Feb. 24	64	74	56	47	7.6	W	56	N	Nov. 24	63	6.4	83	111	171	98	17	35	7	18	43	179	12	
	Kalispell	56.5	34.4	45.5	95	18.00	1.42	11-12	64.9	6.1	7	Dec. 7	---	---	---	---	---	---	---	---	6.8	76	96	193	138	24	29	---	13	44	167	2			
	Miles City	59.5	35.1	47.3	105	13.22	1.22	3-4	28.6	7.0	7	Dec. 7	---	---	---	10.1	SE	*58	NW	Oct. 20	5.9	96	121	148	93	9	28	12	37	42	162	16			
	Missoula	58.6	34.9	46.8	96	16.98	1.55	11	38.2	5.3	12-13	Feb. 11	71	82	61	51	5.3	NW	40	SW	Aug. 25	57	7.0	79	207	132	13	37	48	24	27	172	0		
	NEBRASKA																																		
	Grand Island	61.0	37.4	49.2	99	21.34	2.43	9-10	25.9	3.7	4-5	Mar. 14	76	82	56	56	12.5	S	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Lincoln (U)	62.0	42.1	52.1	98	33.90	4.11	9-10	21.9	5.1	7+	Mar. 7	---	---	---	---	10.1	TS	55	NE	Aug. 9	66	5.7	114	101	150	98	6	44	3	26	42	116	4		
Norfolk	59.8	36.3	48.1	100	21.59	3.01	29-30	18.8	4.7	30-31	Jan. 17	81	87	59	57	9.5	SE	59	NW	Nov. 4	59	5.9	111	100	154	92	16	50	25	29	51	172	12		
North Platte	60.8	34.6	47.7	101	28.8	2.31	13-14	49.3	5.5	17	Nov. 17	74	81	56	55	10.2	SSE	54	S	Jul. 8	64	5.8	104	116	145	86	7	45	18	21	45	131	15		
Omaha	61.2	40.7	51.0	97	21.77	2.31	13-14	49.3	5.5	17	Nov. 17	74	81	56	55	10.2	SSE	54	S	Jul. 8	64	5.8	104	116	145	86	7	45	18	21	45	131	15		
Scottsbluff	62.4	34.7	48.6	98	28.26	3.37	29-30	22.8	4.4	19	Dec. 19	79	51	49	71	10.8	ESE	*58	WNW	Jun. 11	---	5.6	123	97	145	106	17	57	15	32	37	180	8		
Valentine	60.7	33.0	46.9	101	14.73	1.96	8	47.8	5.3	12-13	Dec. 13	82	54	50	75	10.5	TS	56	W	Nov. 4	68	5.4	130	104	131	78	6	49	6	40	54	178	24		
NEVADA																																			
Elko	64.2	29.8	47.0	97	16.12	2.03	25	19.6	3.3	11	Mar. 11	50	63	46	33	5.3	SW	*30	S	Jul. 1	---	5.4	125	97	143	72	20	22	4	41	8	222	5		
Ely	62.9	29.0	46.0	96	7.58	.67	30-31	61.9	9.4	30-31	Mar. 31	56	67	39	31	10.7	S	45	SE	Jun. 28	75	5.0	135	108	122	70	22	25	3	21	13	218	9		
Las Vegas	80.8	53.7	67.3	114	4.52	.90	11-12	1.0	1.0	15-16	Nov. 16	34	43	27	20	9.0	SW	*41	NW	Nov. 22	86	3.3	222	79	64	29	1	18	0	157	0	32	0	32	0
Reno	67.6	33.7	50.7	99	8.87	1.64	2-3	27.2	7.3	2-3	Apr. 3	62	79	47	31	5.4	WNW	72	SSE	Jan. 12	86	4.7	157	91	117	67	11	21	8	46	3	180	0		
Winnemucca	66.8	32.8	49.8	100	9.61	1.79	10-11	23.2	3.4	6	Mar. 6	56	64	44	32	7.9	NE	56	SW	Feb. 24	59	5.5	130	91	144	63	11	17	1	49	4	195	0		
NEW HAMPSHIRE																																			
Concord	55.8	33.6	44.7	93	34.69	1.54	7-8	76.7	14.5	7-8	Jan. 7	83	81	55	67	7.5	NW	39	NE	Mar. 21	53	6.4	92	109	164	128	22	16	35	3	52	167	22		
Mt. Washington Obs.	32.4	19.4	25.9	67	97.44	3.40	15	358.2	17.8	15	Jan. 15	91	88	88	89	33.9	W	139	E	Feb. 21	32	7.9	42	75	248	252	85	17	326	0	179	255	58		
NEW JERSEY																																			
Atlantic City (U)	58.4	46.2	52.3	90	67.17	5.00	25	33.9	11.3	7	Jan. 7	---	---	---	---	14.4	S	80	E	Jan. 25	63	---	---	---	---	---	---	---	---	---	---	---	---	---	
Newark	60.6	44.4	52.5	96	45.47	2.53	22-23	47.4	12.7	15-16	Feb. 16	73	74	55	63	10.3	WNW	36	SSE	Mar. 28+	---	6.2	89	114	162	136	11	27	16	21	33	88	0		
Trenton (U)	60.2	44.6	52.4	93	5377	45.46	2.40	42.8	14.3	19-20	Mar. 20	---	---	---	---	9.6	S	48	N	Jan. 25	59	6.0	103	116	146	123	9	36	---	9	34	87	0		
NEW MEXICO																																			
Albuquerque	70.4	45.2	57.8	101	10.12	1.35	28-29	26.5	14.2	28-29	Dec. 29	49	61	42	32	8.3	SE	57	SE	Sep. 27	73	4.5	162	112	91	64	7	39	9	87	4	100	0		
Clayton	66.0	39.1	52.6	96	17.20	2.46	5-6	41.9	8.1	29	Dec. 29	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Raton	64.7	34.1	49.4	96	19.65	2.05	24-25	30.6	4.7	11-12	Apr. 11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Roswell	74.7	45.9	60.3	110	13.06	2.29	26-27	11.1	4.4	4-5	Jan. 5	62	75	47	39	11.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
NEW YORK																																			
Albany	55.5	36.8	46.2	94	32.39	1.42	14-15	78.2	17.9	15-16	Feb. 16	80	81	59	67	8.5	S	42	W	Feb. 25+	52	6.8	71	98	196	139	17	19	21	6	62	142	18		
Binghamton (U)	55.2	37.8	46.5	92	42.45	1.89	28	73.4	8.2	16	Feb. 16	AP	AP	AP	60	70	9.6	NNW	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP		
Buffalo	55.0	38.7	46.9	90	34.39	1.44	25	133.2	14.5	16-17	Jan. 17	78	79	60	67	11.4	SSW	59	SW	Oct. 14	57	6.9	72	99	194	173	34	28	13	1	63	135	3		

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ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature				Precipitation				Relative humidity			Wind				Number of days																		
	Averages		Extremes		Total	Greatest in 24 hrs	Snow, Sleet		1:00 a. m.	7:00 a. m.	7:00 p. m.	Average hourly speed	Prevailing direction	Speed	Direction	Fastest mile	Percent of possible sunshine	Sunrise to sunset			01 inch or more	Snow, Sleet, Hail	10 or more	Thunderstorms	Heavy fog	Max temp		Min temp						
	Daily maximum	Daily minimum	Monthly	Highbeat			Lowest	Date										Date	Clear	Partly cloudy						Cloudy								
NEW YORK (Cont'd.)	59.6	46.4	53.0	94	51.34	3.40	22-23	43.5	9.5	15-16	Feb.	72	56	62	70	13.8	---	68	NE	Jan.	--	6.3	90	113	162	143	11	23	20	10	34	75	0	
	58.9	46.1	52.5	90	49.35	3.17	22-23	33.2	8.5	13-16	Feb.	73	60	62	68	14.1	+NW	68	S	Nov.	59	5.9	106	119	140	122	10	20	13	4	33	79	0	
	59.5	45.5	52.5	93	40.94	2.42	22-23	39.8	9.7	20-21	Mar.	--	75	59	66	9.8	W	42	N	Mar.	59	5.9	77	176	112	133	10	--	--	6	34	78	0	
	55.0	37.4	46.2	91	35.80	2.48	16-17	138.5	13.9	16-17	Feb.	83	84	63	71	11.6	WSW	57	W	Jun.	58	6.9	70	92	203	156	37	24	9	1	62	141	0	
Rochester	54.8	37.4	46.1	92	42.79	1.71	1-2	167.2	15.1	8-9	Feb.	81	83	64	71	10.2	WNW	50	NW	Nov.	45	7.1	58	99	208	186	46	27	6	1	63	113	14	
Syracuse	64.6	44.2	54.4	90	33.23	3.44	27-28	17.7	9.8	15-16	Feb.	--	84	54	65	7.4	+NW	43	SE	Jan.	56	5.6	113	103	149	119	6	41	59	3	16	94	2	
NORTH CAROLINA	66.7	53.2	60.0	93	53.47	4.46	27-28	4.0	4.0	13	Dec.	83	82	66	78	12.3	NNE	--	--	Jan.	--	5.8	113	99	153	102	1	36	21	4	2	36	0	
Asheville (U)	70.3	48.4	59.4	98	39.75	2.59	27-28	6.2	2.9	14	Feb.	78	84	53	63	8.5	SSW	56	NW	Jun.	63	5.7	122	101	142	99	3	38	19	56	3	73	0	
Cape Hatteras (R)	66.7	45.6	56.2	94	40.83	3.60	27-28	14.6	6.3	15	Dec.	80	83	53	64	8.2	SW	39	SE	Jun.	70	5.8	104	116	145	112	6	39	20	25	9	93	2	
Charlotte	68.0	46.8	57.4	85	45.57	3.18	27-28	17.5	9.1	11	Dec.	81	86	56	68	7.3	S	33	N	27	64	5.7	119	97	149	100	4	48	17	33	7	84	0	
Greensboro	70.9	51.9	61.4	99	63.44	8.24	26-27	5.1	3.1	11-12	Dec.	--	85	58	75	12.1	N	88	N	May	65	5.5	122	115	128	109	3	35	16	50	2	60	0	
Raleigh	67.1	47.0	57.1	95	40.88	3.48	27-28	12.4	7.1	15	Feb.	75	79	53	62	10.1	NE	48	NW	17	--	5.6	117	106	142	107	4	36	24	30	7	54	0	
Wilmington	54.8	30.2	42.5	107	12.59	1.16	3-4	37.8	6.8	26-27	Feb.	71	78	55	53	10.9	WNW	67	NW	Nov.	61	6.1	102	103	160	90	11	28	11	28	87	174	40	
Winston-Salem	50.6	28.9	39.8	102	13.90	1.54	Jul. 1	35.2	6.4	24-25	Nov.	--	82	59	58	8.5	+NW	52	NW	Mar.	61	6.3	93	102	170	101	10	16	11	9	101	380	54	
NORTH DAKOTA	53.0	31.8	42.4	101	20.94	2.86	3-4	13.9	4.7	17-18	Feb.	73	79	56	55	14.3	N	56	W	26	59	5.9	102	111	152	85	4	33	7	12	87	100	44	
Bismarck	53.9	32.4	43.2	105	11.79	.93	20-21	35.7	7.3	26-27	Nov.	--	74	55	50	7.4	+SE	40	W	14	61	6.4	94	93	178	83	9	10	7	19	87	164	33	
Devils Lake (U)	56.7	37.9	47.3	89	37.38	4.18	30-31	43.5	6.1	28	Nov.	82	85	62	71	11.1	S	--	--	Nov.	--	6.8	80	90	195	180	16	37	28	0	55	134	12	
Fargo	62.0	43.4	52.7	92	38.07	2.31	31	24.8	8.8	28	Nov.	AP	AP	AP	AP	61	S	25	N	11	61	6.2	69	77	80	208	117	6	41	40	10	37	109	3
Williston (U)	57.7	41.1	49.4	91	32.87	2.23	17	35.7	6.1	28	Nov.	77	79	60	65	13.7	S	59	W	24	47	6.9	72	96	197	146	9	32	12	5	54	118	7	
OHIO	60.3	40.8	50.6	93	40.37	2.93	9-10	26.7	6.2	28	Nov.	81	83	59	66	8.2	SSW	42	N	14	53	6.6	69	109	187	133	8	44	23	13	14	120	6	
Akron	58.5	41.1	49.8	89	41.25	3.25	13	32.7	6.7	28	Nov.	77	81	59	65	10.6	SSW	56	NW	Apr.	59	6.7	80	91	194	132	9	43	23	0	49	121	9	
Cincinnati (Abbe Obs.)	57.3	41.7	49.5	93	28.63	1.40	11	23.1	5.8	8	Dec.	--	--	--	--	8.5	---	56	SW	24	63	5.4	120	124	121	128	8	37	13	7	56	116	8	
Cleveland	57.9	38.3	48.1	91	28.28	1.66	10	28.6	5.7	15	Feb.	--	84	59	66	10.8	WSW	--	--	Jun.	--	60	6.4	88	103	174	128	5	15	10	4	62	146	9
Columbus	56.3	37.6	47.0	88	35.58	1.59	30-31	58.6	7.3	28	Nov.	83	85	62	70	11.4	SW	44	W	25	--	6.9	79	82	204	154	22	29	36	0	57	149	7	
Dayton	68.6	48.2	58.4	101	29.16	2.83	20-21	18.3	6.8	11-12	Mar.	82	87	62	60	13.1	SSE	66	S	17	61	5.6	128	95	142	88	6	18	20	68	13	87	0	
Sandusky (U)	69.4	49.6	59.5	100	32.88	1.84	13-16	29.1	8.8	12-13	Mar.	76	83	57	56	8.9	SSE	56	NW	24	59	6.0	107	96	162	97	9	49	13	72	16	81	0	
Toledo	60.8	45.4	53.1	90	72.24	3.47	18-19	.0	.0	---	Oct.	88	90	79	73	8.0	SE	46	SSW	29	Jan.	--	7.9	45	63	257	193	0	12	32	2	0	15	0
Youngstown	62.1	35.6	48.9	97	12.84	.87	17-18	40.0	5.5	11-12	Jan.	64	75	58	44	---	---	---	---	29	--	--	5.7	122	81	162	96	16	23	18	19	8	169	0
OKLAHOMA	66.0	44.0	55.0	104	44.39	2.75	15-16	T	T	14	Nov.	--	--	73	58	7.6	---	---	SW	29	--	--	6.7	89	63	213	141	0	13	69	31	0	37	0
Astoria	55.9	37.5	46.7	97	34.89	2.34	10-11	146.6	13.8	14	Jan.	--	--	67	--	---	---	---	SW	29	--	--	6.8	94	62	209	159	41	20	29	7	19	115	0
Burns (U)	68.7	43.4	56.1	105	23.25	2.47	27-28	.8	8.14	15	Nov.	74	87	69	49	4.9	WNW	46	WSW	24	--	6.4	100	70	195	105	0	19	64	72	1	56	0	
Eugene	66.2	44.6	55.4	106	14.23	1.23	10-11	6.5	2.8	15	Mar.	64	71	57	49	8.8	SE	51	N	3	--	6.1	106	81	178	115	4	16	34	62	14	73	0	

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State and Station	Temperature				Precipitation				Relative humidity			Wind				Number of days			
	Averages		Extremes		Total	Greatest in 24 hrs	Snow, Sleet		Relative humidity			Prevailing direction	Fastest mile		Average hourly speed	Percent of possible sunshine	Sunrise to sunset		
	Daily maximum	Daily minimum	Monthly	Highest			Date	Total	1:00 a. m.	7:00 a. m.	1:00 p. m.		Direction	Speed			Clear	Partly cloudy	Cloudy
OREGON (Cont'd.)	65.5	49.4	57.5	104	Jul. 27	31	Nov. 27	42.19	1.73	Jun. 5-6	0	AP	AP	AP	AP	7.0	72	77	216
					Jul. 27	26	Nov. 16	37.10	3.02	Feb. 24	0	AP	SW	61	8.3	Feb. 24	72	77	216
	67.9	44.2	56.1	104	Jul. 27	26	Nov. 16	37.10	3.02	Feb. 24	0	AP	SW	61	8.3	Feb. 24	72	77	216
	66.7	44.0	55.4	104	Jul. 27	23	Nov. 16	39.43	41.11	Nov. 18-19	0	AP	SW	37	4.3	Nov. 18	80	88	197
	58.5	42.4	50.5	93	Jul. 27	16	Nov. 16	55.94	36.11	Jan. 28-29	88.9	AP	S	46	7.0	Jan. 28	84	68	213
PENNSYLVANIA	58.9	39.9	49.4	93	Jul. 27	16	Nov. 16	55.94	36.11	Jan. 28-29	88.9	AP	S	46	7.0	Jan. 28	84	68	213
	58.9	39.9	49.4	93	Jul. 27	16	Nov. 16	55.94	36.11	Jan. 28-29	88.9	AP	S	46	7.0	Jan. 28	84	68	213
	55.3	38.8	47.1	87	Jul. 27	16	Nov. 16	68.13	39.80	Aug. 6	111.3	AP	SW	29	8.4	Aug. 6	67	100	198
	60.1	42.9	51.5	92	Jul. 27	3	Nov. 16	56.50	36.70	Mar. 2-3	38.7	AP	SW	38	7.6	Mar. 2	89	83	193
	61.1	44.2	52.7	93	Jul. 31	5	Nov. 16	53.11	47.87	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
PHILADELPHIA	57.3	40.2	48.8	90	Jul. 27	4	Nov. 16	63.86	37.33	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	60.7	44.1	52.4	93	Jul. 27	4	Nov. 16	54.13	45.22	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	56.3	37.8	47.1	92	Jul. 27	4	Nov. 16	69.19	39.60	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	58.3	39.2	48.8	94	Jul. 27	5	Nov. 16	63.70	44.36	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	54.7	43.1	48.9	81	Jul. 31	5	Nov. 16	60.25	54.02	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
RHODE ISLAND	56.9	40.7	48.8	90	Jul. 27	5	Nov. 16	62.78	51.54	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	71.5	57.8	64.7	97	Jul. 27	14	Nov. 16	23.44	44.36	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	73.7	50.2	62.0	102	Jul. 27	14	Nov. 16	31.34	44.19	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	72.5	51.1	61.9	102	Jul. 27	14	Nov. 16	30.17	42.11	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	69.5	49.4	59.5	96	Jul. 27	1	Nov. 16	35.78	43.79	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
SOUTH CAROLINA	69.3	48.9	59.1	98	Jul. 27	3	Nov. 16	38.51	47.90	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	58.1	33.4	45.8	102	Aug. 8	15	Nov. 16	75.99	13.58	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	60.2	35.6	47.9	102	Aug. 8	15	Nov. 16	87.19	16.07	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	58.7	34.4	46.6	100	Jun. 30	26	Nov. 16	73.38	15.33	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	65.4	43.6	54.5	93	Jun. 13	5	Nov. 16	48.80	40.54	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
SOUTH DAKOTA	69.2	47.0	58.1	96	Jun. 14	1	Nov. 16	39.33	44.40	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	67.9	47.6	57.8	96	Jun. 13	2	Nov. 16	40.82	37.25	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	69.4	50.1	59.8	97	Jun. 14	6	Nov. 16	37.76	53.93	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	67.7	47.0	57.4	95	Jun. 13	1	Nov. 16	42.74	40.90	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	67.4	46.3	56.9	95	Jun. 14	1	Nov. 16	42.33	37.43	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
TENNESSEE	67.3	45.6	56.5	96	Jun. 28	0	Nov. 16	43.94	35.25	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	74.0	51.5	62.8	103	Jul. 31	9	Nov. 16	31.00	27.49	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	68.5	43.8	56.2	99	Jul. 14	9	Nov. 16	46.37	23.29	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	77.1	56.9	67.0	103	Aug. 13	22	Nov. 16	20.91	41.02	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	67.3	45.6	56.5	96	Jun. 28	0	Nov. 16	43.94	35.25	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
TEXAS	65.4	43.6	54.5	93	Jun. 13	5	Nov. 16	48.80	40.54	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	69.2	47.0	58.1	96	Jun. 14	1	Nov. 16	39.33	44.40	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	67.9	47.6	57.8	96	Jun. 13	2	Nov. 16	40.82	37.25	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	69.4	50.1	59.8	97	Jun. 14	6	Nov. 16	37.76	53.93	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	67.7	47.0	57.4	95	Jun. 13	1	Nov. 16	42.74	40.90	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
UTAH	67.4	46.3	56.9	95	Jun. 14	1	Nov. 16	42.33	37.43	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	67.3	45.6	56.5	96	Jun. 28	0	Nov. 16	43.94	35.25	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	74.0	51.5	62.8	103	Jul. 31	9	Nov. 16	31.00	27.49	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	68.5	43.8	56.2	99	Jul. 14	9	Nov. 16	46.37	23.29	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167
	77.1	56.9	67.0	103	Aug. 13	22	Nov. 16	20.91	41.02	Mar. 19-20	34.3	AP	SW	73	10.4	Mar. 19	86	112	167

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature				Degree days	Precipitation				Relative humidity				Wind				Number of days																	
	Averages		Extremes			Total	Greatest in 24 hrs	Snow, Sleet		1:00a. P. M.	7:00a. P. M.	1:00p. P. M.	7:00p. P. M.	Average hourly speed	Prevailing direction	Speed	Direction	Fastest mile	Percent of possible sunshine	Average sky cover	Sunrise to sunset		Precipitation	Snow, Sleet, Hail	Thunderstorms	Heavy fog	Max temp	Min temp							
	Daily maximum	Daily minimum	Monthly	Highest				Date	Lowest												Date	Total							Greatest in 24 hrs						
TEXAS (Cont'd.)																																			
Brownsville	80.7	64.0	72.4	97	Aug. 35	15	Dec. 16	47.51	4.98	Feb. 19-20	.0	---	92	87	68	74	11.5	SE	43	SE	8	55	6.1	95	119	151	100	0	23	30	105	0	0		
Corpus Christi	79.2	62.5	70.9	99	Aug. 25	16	Dec. 25	42.62	6.38	Apr. 4-5	.5	12	87	90	65	72	10.7	SSE	42	NE	5	69	6.2	88	114	163	91	0	29	26	104	0	5		
Dallas	74.1	55.8	64.9	105	Jul. 16	14	Dec. 16	32.88	3.57	Apr. 25-26	2.1	30	71	81	57	53	10.5	S	57	SW	26	62	5.7	124	95	146	80	1	47	10	98	1	36		
El Paso	76.2	52.2	64.2	106	Jul. 16	31	Dec. 16	17.19	2.52	10-11	10.1	7.3	59	40	31	48	11.7	N	66	W	8	78	4.4	171	99	95	75	3	45	3	101	0	48		
Fort Worth	73.9	54.4	64.2	103	Aug. 15	14	Dec. 15	35.68	3.67	19-20	1.2	9	74	83	58	56	12.0	S	46	NNW	29	74	5.4	132	101	132	88	0	46	14	96	1	43		
Galveston (U)	73.9	63.9	68.9	92	Aug. 30	14	Dec. 30	34.71	4.19	7	.1	12	81	83	71	73	12.6	---	---	---	Aug.	64	---	---	---	---	92	0	---	20	0	2	0	2	
Galveston	74.4	63.8	69.1	94	Aug. 26	13	Dec. 26	48.54	8.44	7	.2	12	81	83	71	73	12.7	S	---	---	Aug.	64	---	---	---	---	92	0	---	20	0	2	0	2	
Houston (U)	77.1	61.2	69.2	100	Aug. 31	13	Dec. 31	41.48	5.19	20-21	T	T	84	89	62	67	9.7	SSE	38	SE	10	63	6	101	114	150	101	0	41	21	99	6	8		
Houston	76.9	59.9	68.4	100	Aug. 26	13	Dec. 26	43.93	2.80	17-18	1.7	1.7	84	89	62	67	11.3	SSE	---	---	Oct.	64	---	---	---	---	92	0	---	20	0	2	0	2	
Laredo	82.4	61.7	72.1	109	Apr. 23	30	Dec. 30	30.36	2.68	Jan. 4-5	T	T	77	86	57	53	10.9	SE	41	E	10	64	---	---	---	---	92	0	---	20	0	2	0	2	
Lubbock	71.2	45.9	58.6	107	Jul. 9	12	Dec. 9	17.59	1.78	27-28	23.9	7.8	71	81	55	48	12.7	S	50	W	5	67	5.1	139	106	120	76	8	42	30	88	5	107		
Midland	74.2	50.3	62.3	106	Jul. 16	30	Dec. 16	20.32	1.66	15	4.7	3.7	67	79	51	43	10.3	SSE	52	SSW	3	67	5.1	151	90	124	64	2	36	25	102	2	67		
Port Arthur	76.4	58.9	67.7	97	Aug. 25	13	Dec. 25	46.55	5.21	20-21	2.9	2.9	85	89	63	70	11.2	S	42	S	13	59	6.4	82	121	162	116	1	57	34	90	0	15		
San Angelo	74.4	52.2	63.3	104	Jul. 10	14	Dec. 14	18.35	2.12	13	2.0	1.0	72	82	55	49	11.1	S	66	NNW	17	60	3.9	106	104	155	102	0	31	26	106	6	15		
San Antonio	77.4	57.3	67.4	100	Aug. 22	13	Dec. 22	39.69	6.97	6-7	1.2	1.2	78	85	59	55	9.3	SSE	43	NW	26	60	3.9	106	104	155	102	0	31	26	106	6	15		
Victoria	78.8	59.9	69.4	101	Aug. 24	13	Dec. 24	41.01	6.30	21-22	3.4	3.4	78	85	59	55	9.9	N	55	NNW	12	60	3.9	106	104	155	102	0	31	26	106	6	15		
Waco	75.9	55.4	65.7	104	Aug. 13	19	Dec. 19	35.31	4.80	23-24	T	T	76	85	59	56	10.9	S	46	NNW	3	60	3.9	106	104	155	102	0	31	26	106	6	15		
Wichita Falls	73.7	51.1	62.4	105	Aug. 27	10	Dec. 10	19.60	2.87	1	15.1	5.2	70	79	53	50	9.8	S	46	NNW	23	60	3.9	106	104	155	102	0	31	26	106	6	15		
UTAH																																			
Midford	67.0	33.7	50.4	104	Jul. 12	18	Nov. 13	6.48	.63	11	37.0	5.7	---	---	---	---	---	---	---	---	Nov.	51	7.3	53	92	220	157	27	20	17	1	73	15	36	
Salt Lake City	66.5	40.6	53.6	102	Jun. 27	6	Nov. 6	10.72	1.65	22-23	61.6	11.1	61	67	42	39	8.5	SSE	43	S	14	76	5.1	140	98	127	82	16	27	15	69	5	131		
VERMONT																																			
Burlington	52.1	33.9	43.0	90	Jul. 1	18	Dec. 18	34.75	1.43	21-22	101.6	12.4	80	78	60	68	9.1	S	38	SW	1	51	7.3	53	92	220	157	27	20	17	1	73	15	36	
VIRGINIA																																			
Lynchburg	64.2	45.0	54.6	94	Jul. 31	2	Feb. 2	37.94	2.30	28-29	26.7	11.9	79	55	65	60	8.0	TS	56	N	19	59	5.8	113	110	142	126	7	40	29	18	17	87		
Norfolk	66.5	49.8	58.2	98	Jul. 11	17	Dec. 11	57.78	4.05	25-26	18.1	11.4	80	80	58	69	10.7	N	48	S	13	58	5.9	101	115	149	111	4	40	21	38	9	69		
Richmond	66.3	46.0	56.2	96	Jul. 1	16	Dec. 1	53.53	3.95	3-4	30.2	6.7	81	84	56	69	7.9	S	39	E	25	56	6.1	105	104	156	116	7	40	20	39	8	87		
Roanoke	65.2	45.1	55.2	96	Jul. 3	17	Dec. 3	39.51	3.66	28-29	27.4	6.0	72	75	51	59	9.2	NW	---	---	---	60	102	115	148	116	9	47	20	33	15	90	0	0	
WASHINGTON																																			
Olympia	63.6	42.8	53.2	99	Jul. 27	17	Nov. 17	52.40	2.42	17-18	1.4	9	80	88	74	58	6.8	SW	60	S	3	74	5.8	113	110	142	126	7	40	29	18	17	87		
Seattle-Tacoma	61.9	45.7	53.8	97	Jul. 28	25	Nov. 25	42.63	2.13	18-19	.2	24	77	86	75	61	11.1	SSW	55	SSW	25	77	5.8	113	110	142	126	7	40	29	18	17	87		
Seattle (U)	63.3	49.1	56.2	98	Jul. 28	19	Nov. 19	36.21	1.82	16-17	T	T	72	81	67	54	---	---	---	---	Jan.	52	---	---	---	---	172	0	---	6	0	3	0	0	
Spokane	60.2	41.1	50.7	98	Aug. 25	11	Nov. 11	20.91	.81	3-4	27.0	6.1	69	79	64	53	8.3	ENE	45	SW	25	61	6.8	80	85	200	124	11	24	60	39	24	106		
Stamper Pass (R)	48.9	36.0	42.5	90	Aug. 23	9	Nov. 9	93.41	4.54	11-12	330.7	15.2	---	---	---	---	---	---	---	---	Apr.	73	7.3	53	92	220	157	27	20	17	1	73	15	36	
Tatoosh Island (R)	55.6	47.3	51.5	79	Jul. 15	33	Nov. 33	78.19	2.92	30-31	T	T	87	88	84	82	15.3	E	71	SW	17	43	8.0	38	72	255	199	0	2	74	0	0	0		
Walla Walla (U)	66.3	47.1	56.7	105	Jul. 16	17	Nov. 16	17.24	1.52	24	8.6	2.6	---	---	---	---	---	---	---	---	Nov.	65	6.2	106	76	183	121	4	16	20	65	14	53	0	0
Yakima	65.7	38.8	52.3	104	Aug. 8	27	Nov. 8	8.31	.57	3	1.5	.6	68	79	56	44	5.8	NNW	37	WSW	25	63	3.102	79	184	78	0	14	16	60	9	144	0	0	

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature				Precipitation				Relative humidity				Wind				Number of days				Max temp		Min temp																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Averages		Extremes		Degree days	Snow, Sleet		Total	Greatest in 24 hrs	Date	Snow, Sleet		Total	Greatest in 24 hrs	Date	1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Average hourly speed	Prevailing direction	Speed	Direction	Fastest mile	Percent of possible sunshine	Sunrise to sunset			Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	90° and above	32° and below	32° and below	Zero and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Daily maximum	Daily minimum	Monthly	Highest		Lowest	Date				Greatest in 24 hrs	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

YEAR 1958

State and Station	Temperature						Precipitation				Relative humidity				Wind				Number of days						Max temp 90° and above 32° and below 32° and below Zero and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	Averages			Extremes			Total	Greatest in 24 hrs	Date	Snow, Sleet		Average hourly speed	Prevailing direction	Speed	Direction	Fastest mile Date	Percent of possible sunshine Average sky cover sunrise to sunset	Clear	Partly cloudy	Cloudy	Precipitation 0.1 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	Daily maximum	Daily minimum	Monthly	Highest	Lowest	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Data from airport unless otherwise indicated.

U indicates Urban, R indicates Rural, sites. Where certain elements are from the airport, these are indicated by AP above each value.

* Data entered in column headed "Fastest Mile" is the fastest observed one minute wind speed and its direction. This station is not equipped with automatic recording wind instruments.

+ Also on earlier dates.

† Wind direction to 8 compass points only.

‡ Peak gust.

Number of days maximum 70 F or above for Alaskan stations.

a Computed as of midnight local time.

b Computed as of noon local time.

c Sun below horizon November 18 - January 24.

d Maximum hourly average.

e Computed as of 8 00 am local time.

k Sun below horizon November 26 - January 16.

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temperature (°F)				Precipitation (inches)				Relative humidity (percent)				Wind Speed (m.p.h.)		Sunshine (percent possible)	Annual mean number of days				
		Normal (1921-1950)		Extremes		(1921-1950)		Extremes		Snow (inches)		January		July			Surf to top				
		Normal (1921-1950)		Extremes		(1921-1950)		Extremes		Mean total		January		July			Surf to top				
		January	July	Record high	Record low	Annual	Wettest month	Driest month	Wettest month	Maximum in 24 hours	Minimum in 24 hours	7 a.m. to 7 p.m. EST	7 a.m. to 7 p.m. CST	7 a.m. to 7 p.m. MST	7 a.m. to 7 p.m. PST		Cloudy	Partly cloudy	Clear	Thunderstorms	
ALABAMA																					
Anniston (1952)	599	56.6	34.9	91.2	68.2	62.5	47.105	-3	614	2820	6.09	2.58	52.20	116.25	0.02	20.33	0.00	20.33	0.00	20.33	
Birmingham	610	55.5	34.9	90.2	69.0	62.5	47.105	-3	623	2820	6.31	2.71	53.52	15.25	0.02	20.33	0.00	20.33	0.00	20.33	
Mobile (1952)	10	61.4	84.8	89.8	74.0	68.1	81.103	-1	412	1529	7.94	3.07	62.23	26.67	0.00	12.98	0.00	12.98	0.00	12.98	
Montgomery (U)	211	62.2	43.2	89.4	72.0	67.3	17.104	11	416	1612	8.97	3.15	67.17	19.29	0.05	13.36	0.00	13.36	0.00	13.36	
Montgomery (U)	201	59.1	41.5	90.6	72.2	67.3	17.104	11	416	1612	8.97	3.15	67.17	19.29	0.05	13.36	0.00	13.36	0.00	13.36	
Montgomery	195	59.7	38.7	91.3	71.0	65.4	86.107	-5	517	2137	6.50	2.36	53.66	20.10	0.00	9.98	0.00	9.98	0.00	9.98	
ARIZONA																					
Flagstaff	6933	38.9	11.7	79.2	51.1	44.6	64.127	-33	1231	7525	2.60	53	18.47	6.60	0.00	5.95	0.00	5.95	0.00	5.95	
Phoenix	1083	64.3	36.2	93.5	77.5	70.5	96.14	-16	425	1492	1.96	0.67	17.12	5.56	0.00	3.07	0.00	3.07	0.00	3.07	
Phoenix	1109	64.3	36.2	93.5	77.5	70.5	96.14	-16	425	1492	1.96	0.67	17.12	5.56	0.00	3.07	0.00	3.07	0.00	3.07	
Prescott	5014	50.2	20.4	90.9	61.0	52.2	16.118	7	921	4533	3.70	2.23	15.98	9.61	0.00	3.08	0.00	3.08	0.00	3.08	
Tucson	2584	63.1	36.3	90.4	73.0	67.6	18.111	16	474	1776	2.15	1.21	10.66	7.73	0.00	3.93	0.00	3.93	0.00	3.93	
Winslow	4880	46.2	19.2	92.6	61.8	55.0	27.106	-18	1001	4702	1.62	2.29	7.83	2.72	0.00	2.12	0.00	2.12	0.00	2.12	
Yuma	199	67.2	43.3	107.7	81.5	74.7	8.120	28	318	951	1.64	0.01	3.39	2.68	0.00	2.09	0.00	2.09	0.00	2.09	
ARKANSAS																					
Fayetteville	458	50.6	29.4	84.2	70.4	62.0	88.120	-29	775	3188	5.06	2.56	41.56	14.01	0.00	12.00	0.00	12.00	0.00	12.00	
Fort Smith	257	51.0	32.4	82.7	71.1	62.4	17.107	5	719	2982	5.16	2.81	47.38	12.53	0.00	7.71	0.00	7.71	0.00	7.71	
Little Rock	361	56.3	35.5	84.6	71.1	65.1	16.106	-3	600	2362	5.30	2.79	50.59	15.33	0.04	6.55	0.00	6.55	0.00	6.55	
Texasarkana	361	56.3	35.5	84.6	71.1	65.1	16.106	-3	600	2362	5.30	2.79	50.59	15.33	0.04	6.55	0.00	6.55	0.00	6.55	
CALIFORNIA																					
Bakersfield	494	57.3	36.5	90.1	67.3	65.0	21.115	21	561	2115	1.12	0.01	6.36	4.61	0.00	26.12	0.00	26.12	0.00	26.12	
Beaumont (U) (1952)	2589	57.4	35.6	84.7	57.4	60.1	13.110	11	574	2420	3.67	0.09	17.86	8.63	0.00	4.16	0.00	4.16	0.00	4.16	
Bishop	4108	53.6	22.6	86.9	54.1	56.0	11.109	-6	840	4222	1.12	0.01	5.38	5.03	0.00	3.32	0.00	3.32	0.00	3.32	
Blue Canyon	5280	43.8	28.5	77.7	57.9	50.1	4.133	5	893	5719	9.47	0.00	53.51	45.12	0.00	9.31	0.00	9.31	0.00	9.31	
Blue Canyon	5280	43.8	28.5	77.7	57.9	50.1	4.133	5	893	5719	9.47	0.00	53.51	45.12	0.00	9.31	0.00	9.31	0.00	9.31	
Burbank	433	53.6	40.8	86.6	52.2	59.3	48.135	22	552	4633	6.26	0.09	33.15	13.94	0.00	5.83	0.00	5.83	0.00	5.83	
Burbank	433	53.6	40.8	86.6	52.2	59.3	48.135	22	552	4633	6.26	0.09	33.15	13.94	0.00	5.83	0.00	5.83	0.00	5.83	
Fresno	312	53.5	35.9	90.0	64.1	63.0	19.111	18	629	2532	1.66	0.01	9.31	6.73	0.00	2.44	0.00	2.44	0.00	2.44	
Fresno	312	53.5	35.9	90.0	64.1	63.0	19.111	18	629	2532	1.66	0.01	9.31	6.73	0.00	2.44	0.00	2.44	0.00	2.44	
Los Angeles (U)	99	63.4	34.4	84.4	60.8	60.2	10.208	23	378	2013	2.75	0.01	14.54	12.42	0.00	6.19	0.00	6.19	0.00	6.19	
Los Angeles	99	63.4	34.4	84.4	60.8	60.2	10.208	23	378	2013	2.75	0.01	14.54	12.42	0.00	6.19	0.00	6.19	0.00	6.19	
Mount Shasta (R)	3544	41.4	24.4	84.8	49.4	49.3	16.103	-2	998	5913	5.39	1.3	32.71	17.60	0.00	5.90	0.00	5.90	0.00	5.90	
Oakland	3	56.0	38.4	72.0	53.4	56.5	30.102	23	552	3163	3.42	0.01	17.63	11.29	0.00	3.21	0.00	3.21	0.00	3.21	
Red Bluff	341	53.3	36.9	88.9	67.4	63.2	80.115	17	617	2546	4.23	0.02	21.57	20.71	0.00	6.12	0.00	6.12	0.00	6.12	
Sacramento (U)	23	52.1	38.2	92.0	58.6	60.9	25.112	22	614	2600	3.31	0.01	16.32	12.20	0.00	3.52	0.00	3.52	0.00	3.52	
Sacramento	19	52.1	38.2	92.0	58.6	60.9	25.112	22	614	2600	3.31	0.01	16.32	12.20	0.00	3.52	0.00	3.52	0.00	3.52	
Sacramento	19	52.1	38.2	92.0	58.6	60.9	25.112	22	614	2600	3.31	0.01	16.32	12.20	0.00	3.52	0.00	3.52	0.00	3.52	
San Diego	1692	53.6	32.5	82.6	63.2	62.9	18.104	33	577	2522	3.61	0.01	13.82	7.60	0.00	3.07	0.00	3.07	0.00	3.07	
San Francisco (U)	52	55.4	44.8	84.4	53.4	56.7	22.104	30	482	3069	4.07	0.01	20.51	11.47	0.00	3.65	0.00	3.65	0.00	3.65	
San Francisco	8	55.8	39.9	89.2	51.5	55.3	10.104	20	530	3421	3.59	0.01	17.43	12.30	0.00	3.33	0.00	3.33	0.00	3.33	
San Jose (1950)	95	58.0	40.5	80.8	54.5	59.3	30.106	20	487	2410	2.53	0.01	12.69	12.38	0.00	4.56	0.00	4.56	0.00	4.56	
Sandberg (R)	4517	46.0	33.6	85.1	62.7	55.3	26.102	3	781	4243	2.85	0.04	12.42	11.12	0.00	4.09	0.00	4.09	0.00	4.09	
Santa Catalina (1952)	1568	59.0	46.7	77.0	58.3	60.1	8.102	29	375	2249	2.97	0.03	13.48	7.81	0.00	2.68	0.00	2.68	0.00	2.68	
Santa Maria	238	62.7	38.0	72.6	51.7	57.1	16.104	22	453	2934	2.71	0.03	13.48	7.81	0.00	2.68	0.00	2.68	0.00	2.68	
COLORADO																					
Alamosa	7536	36.3	2.5	81.3	46.8	41.4	73.118	-60	1491	8659	1.10	0.17	6.23	2.45	0.00	8.05	0.00	8.05	0.00	8.05	
Colorado Springs	6173	40.9	16.5	84.8	57.6	49.1	10.100	-27	1122	6254	2.72	0.22	14.26	5.90	0.00	3.09	0.00	3.09	0.00	3.09	
Denver (U)	5221	42.5	20.3	85.9	61.5	51.4	85.105	-29	1042	5673	2.06	0.50	13.43	8.57	0.00	6.53	0.00	6.53	0.00	6.53	
Denver	5292	44.1	15.6	87.2	58.3	49.8	24.104	-30	1125	6131	2.20	0.50	14.20	3.48	0.00	3.43	0.00	3.43	0.00	3.43	
Denver	5292	44.1	15.6	87.2	58.3	49.8	24.104	-30	1125	6131	2.20	0.50	14.20	3.48	0.00	3.43	0.00	3.43	0.00	3.43	
Grand Junction	4849	33.8	14.1	82.5	63.8	52.1	12.102	-14	1271	5796	1.20	0.45	9.06	7.31	0.00	1.24	0.00	1.24	0.00	1.24	
Pueblo	4639	44.9	13.8	89.8	59.9	51.5	18.105	-31	1104	5709	1.81	0.38	11.87	6.17	0.00	3.77	0.00	3.77	0.00	3.77	
CONNECTICUT																					
Bridgeport	7	36.6	21.8	81.6	63.9	50.5	10.102	-20	1110	5996	4.43	2.83	42.01	18.77	0.00	12.12	0.00	12.12	0.00	12.12	
Hartford	15	37.5	23.0	83.6	62.3	56.1	10.104	-24	1178	6089	3.93	2.50	42.01	18.77	0.00	12.12	0.00	12.12	0.00	12.12	
Hartford	15	37.5	23.0	83.6	62.3	56.1	10.104	-24	1178	6089	3.93	2.50	42.01	18.77	0.00	12.12	0.00	12.12	0.00	12.12	
Hartford Bradley Fld.	169	36.1	21.7	83.6	62.3	56.1	10.104	-24	1178	6089	3.93	2.50	42.01	18.77	0.00	12.12	0.00	12.12	0.00	12.12	
New Haven	6	37.0	21.2	80.1	62.3	49.7	86.101	-5	1113	6026	4.12	3.00	44.99	17.08	0.12	8.73	0.00	8.73	0.00	8.73	
DELAWARE																					
Wilmington	78	41.8	24.7	86.7	65.0	54.2	11.102	-4	983	4910	5.28	2.98	44.50	12.09	0.16	6.24	0.00	6.24	0.00	6.24	
DIST. OF COLUMBIA																					
Silver Hill Obs. (1953)	284	43.4	27.4	84.6	66.2	55.3	2.101	8	948	4539	5.94	2.58	43.91	9.99	0.66	3.03	0.00	3.03	0.00	3.03	
Washington (U)	72	44.0	28.9	87.1	66.4	56.8	87.106	-15	884	4258	4.49	2.64	41.44	17.45	0.00	7.31	0.00	7.31	0.00	7.31	
Washington Nat'l AP	14	43.8	28.5	86.1	68.4	56.5	17.105	1	893	4333	4.75	2.44	40.48	14.31	0.22	6.39	0.00	6.39	0.00	6.39	
FLORIDA																					
Apalachicola	13	62.2	48.1	87.4	75.1	68.8	36.102	18	352	1307	7.65	2.10	51.07	27.73	0.00	23.22	0.00	23.22	0.00	23.22	
Apalachicola	13	62.2	48.																		

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temperature (°F.)				Normal degree days (1921-1950)	Precipitation (inches)				Relative humidity (percent)				Wind Speed (m.p.h.)		Sunshine (percent of possible)	Annual mean number of days			
		Normal (1921-1950)					Extremes				January				Mean			Sunrise in winter			
		January	July	Annual	Extremes		January	July	Annual	January	July	Annual	Extremes	January	July	January		July	Annual	Extremes	
		Maximum	Minimum	Maximum	Minimum		Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum		Maximum	Minimum	Maximum	Minimum
FLORIDA (Cont'd.)																					
Jacksonville	24 66.3	45.4	91.4	72.7	69.3	87 105	331	1243	7.64	32.08	23.32	5.57	1.54	39.52	23.56	1.98	62	121	140	104	122
Key West (U)	5 75.8	65.8	89.1	78.3	77.6	88 97	41	28	6.78	39.52	23.32	5.57	1.54	39.52	23.56	1.98	62	121	140	104	122
Key West (U)	6 75.4	65.1	89.2	77.5	77.2	88 97	41	28	6.78	39.52	23.32	5.57	1.54	39.52	23.56	1.98	62	121	140	104	122
Lakeland (U)	214 71.5	52.5	90.2	72.2	72.2	18 101	25	185	6.49	39.52	23.32	5.57	1.54	39.52	23.56	1.98	62	121	140	104	122
McIntosh (U)	26 71.3	62.6	86.8	76.4	75.3	47 95	27	57	173	7.88	1.71	47.20	25.34	1.71	47.20	25.34	1.71	47.20	25.34	1.71	47.20
Miami (U)	8 74.3	62.6	86.8	76.4	75.3	47 95	27	57	173	7.88	1.71	47.20	25.34	1.71	47.20	25.34	1.71	47.20	25.34	1.71	47.20
Miami Beach	9 75.5	64.4	87.6	74.7	76.1	19 105	22	185	6.49	39.52	23.32	5.57	1.54	39.52	23.56	1.98	62	121	140	104	122
Orlando	106 73.0	50.7	91.4	72.7	72.2	16 102	24	188	6.50	39.52	23.32	5.57	1.54	39.52	23.56	1.98	62	121	140	104	122
Pensacola (U)	13 61.1	46.9	86.9	75.0	68.0	19 103	13	383	1435	7.59	3.84	61.60	18.80	7.59	3.84	61.60	18.80	7.59	3.84	61.60	18.80
Pensacola (U)	110	46.9	86.9	75.0	68.0	19 103	13	383	1435	7.59	3.84	61.60	18.80	7.59	3.84	61.60	18.80	7.59	3.84	61.60	18.80
Tallahassee	64 65.2	42.0	91.0	71.0	67.7	19 103	15	385	1519	7.87	2.38	56.66	20.32	7.87	2.38	56.66	20.32	7.87	2.38	56.66	20.32
Tallahassee	14 70.8	52.1	89.7	73.8	72.3	69 98	19	201	674	8.11	1.04	49.94	18.93	8.11	1.04	49.94	18.93	8.11	1.04	49.94	18.93
West Palm Beach	15 75.4	58.6	89.9	74.0	75.0	20 101	31	85	248	9.12	2.20	61.72	18.26	9.12	2.20	61.72	18.26	9.12	2.20	61.72	18.26
GEORGIA																					
Albany (1953)	190 62.4	40.3	93.0	71.9	67.4	65 106	-2	629	1763	5.46	2.02	49.50	20.48	5.46	2.02	49.50	20.48	5.46	2.02	49.50	20.48
Athens	798 54.6	34.8	92.4	69.1	62.7	15 105	5	426	2800	5.17	3.09	49.94	14.98	5.17	3.09	49.94	14.98	5.17	3.09	49.94	14.98
Atlanta (U)	1054 52.5	36.6	87.3	70.0	62.0	15 105	5	426	2800	5.17	3.09	49.94	14.98	5.17	3.09	49.94	14.98	5.17	3.09	49.94	14.98
Atlanta (U)	975 53.1	35.9	89.4	69.6	62.2	80 103	-9	632	2826	5.49	2.50	47.96	14.98	5.49	2.50	47.96	14.98	5.49	2.50	47.96	14.98
Augusta	143 59.2	35.6	91.9	70.1	64.0	85 106	3	554	2407	5.21	2.44	43.17	14.00	5.21	2.44	43.17	14.00	5.21	2.44	43.17	14.00
Columbus	388 58.1	36.7	91.9	70.7	64.2	13 104	10	563	2396	5.92	2.04	49.00	15.53	5.92	2.04	49.00	15.53	5.92	2.04	49.00	15.53
Dayton	336 60.4	38.6	93.3	71.5	66.1	59 106	7	497	2049	5.34	2.27	46.31	20.52	5.34	2.27	46.31	20.52	5.34	2.27	46.31	20.52
Dayton	48 62.2	40.9	90.7	71.5	66.1	59 106	7	497	2049	5.34	2.27	46.31	20.52	5.34	2.27	46.31	20.52	5.34	2.27	46.31	20.52
Savannah	283 64.2	44.2	90.0	71.1	67.9	67 106	18	376	1472	7.02	2.54	54.46	18.93	7.02	2.54	54.46	18.93	7.02	2.54	54.46	18.93
Thomasville (1953)	200 65.4	41.7	92.0	71.5	67.8	67 106	18	385	1525	8.03	2.14	51.62	15.94	8.03	2.14	51.62	15.94	8.03	2.14	51.62	15.94
Valdosta	284 64.2	41.7	92.0	71.5	67.8	67 106	18	385	1525	8.03	2.14	51.62	15.94	8.03	2.14	51.62	15.94	8.03	2.14	51.62	15.94
IDAHO																					
Boise	2842 34.6	19.9	80.5	59.1	50.8	49 109	-17	1169	5890	1.35	1.18	11.48	4.00	1.35	1.18	11.48	4.00	1.35	1.18	11.48	4.00
Idaho Falls 45W	4933 27.6	3.8	88.1	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42	1.02	3.67	7.69	4.42
Idaho Falls 42N (R)	4943 25.3	0.7	87.9	50.3	42.3	9 99	-30	1273	8556	1.02	3.67	7.69	4.42	1.0							

NORMALS, MEANS AND EXTREMES

State and Station	Temperature (°F)				Normal degree days (1921-1950)	Precipitation (inches)				Snow, steel				Relative humidity (percent)				Wind Speed (m.p.h.)		Sunshine (percent of possible)	Annual mean number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Normal (1921-1950)					Annual	Wettest month	Driest month	Extremes		Snow, steel		January				July	Mean hourly	Fastest mile		Surface to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Maximum	Minimum	Annual	Length, yrs					Record high	Record low	Maximum	Minimum	Maximum in 24 hours	Mean total	Extreme	7:00 a.m.					7:00 p.m.	7:00 a.m.	7:00 p.m.	7:00 p.m.	7:00 a.m.	7:00 p.m.	7:00 p.m.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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Bowling Green (1952)	534	45.6	27.0	88.9	65.6	56.9	113	-20	890	4279	5.66	2.88	50.10	20.70	0.0	10.10	3.0	8.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NORMALS, MEANS AND EXTREMES

State and Station	Temperature (°F)										Normal degree days (1921-1950)		(1921-1950)		Precipitation (inches)		Relative humidity (percent)				Wind Speed (m.p.h.)		Sunshine (percent of possible)	Annual mean number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Normal (1921-1950)					Extremes					Normal (1921-1950)	(1921-1950)	Extremes		Snow, sleet		January				July			Mean hourly	Fog or more	Snow, sleet hail	Thunderstorms	Heavy fog	Temperature																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	January		July		Record highest	Record lowest	Length, yrs.	Annual	Wettest month	Driest month			(1921-1950)	Wettest month	Driest month	Maximum in 24 hours	Mean total	Ice freeze	7 00 a.m.		7 00 p.m.								1 00 p.m.		Clear	Partly cloudy	Sunrise to sunset	Precipitation	0.1 inch or more	10.0 inch or more	90 and above	33 and below	Min	Max																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Daily maximum	Daily minimum	Daily maximum	Daily minimum							Daily maximum	Daily minimum							Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum											Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily maximum	Daily minimum	Daily 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NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (ft)	Temperature (°F)				Normal degree days (1921-1950)	Precipitation (inches)				Snow				Relative humidity (percent)				Wind Speed (m.p.h.)		Sunshine (percent of possible)		Annual mean number of days																																																																																																																																																																																																																																																																																																																																																							
		Normal (1921-1950)					(1921-1950)	Extremes				(1921-1950)				Extremes				Mean total	Snow	Ice	Extreme	Ex	Time	January				July				Mean hourly	Fastest mile	Clear	Partly cloudy	Snow, steel hail	Thunderstorms	Heavy fog	Temperature																																																																																																																																																																																																																																																																																																																																					
		Daily maximum	Daily minimum	Annual	Length yrs			Record high	Record low	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month							Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month								Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month	Wettest month	Driest month

NORMALS, MEANS AND EXTREMES

[illegible]

See reference notes at end of table.

NORMALS, MEANS AND EXTREMES

[illegible]

a from airport or from airport and Urban site records combined.
b from airport or from airport and Urban site records combined.
c from airport or from airport and Urban site records combined.
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w from airport or from airport and Urban site records combined.
x from airport or from airport and Urban site records combined.
y from airport or from airport and Urban site records combined.
z from airport or from airport and Urban site records combined.

ELEVATIONS-STATION PRESSURE

State and station		State and station		State and station		State and station	
ALABAMA	Ft.	IOWA	Ft.	NEW HAMPSHIRE	Ft.	TENNESSEE (Cont'd.)	Ft.
Birmingham	700	Burlington	702	Concord	289	Chattanooga	762
Mobile	221	Des Moines	860	Mt. Washington	6267	Knoxville	940
Montgomery	218	Dubuque	699			Memphis CO	
ARIZONA		Sioux City	1138	NEW JERSEY		Memphis	399
Flagstaff	7018	Waterloo	878	Atlantic City CO	52	Nashville	546
Phoenix	1107	KANSAS		Newark	30	Oak Ridge	914
Prescott	5022	Concordia CO	1392	Trenton CO	190	TEXAS	
Tucson	2555	Dodge City	2509			Abilene	1738
Winslow	4863	Goodland	3688	NEW MEXICO		Amarillo	3676
Yuma	141	Topeka	987	Albuquerque	4972	Austin	609
ARKANSAS		Wichita	1358	Clayton	5052	Brownsville	57
Fort Smith	463	KENTUCKY		Raton	6376	Corpus Christi	20
Little Rock	357	Lexington	989	Roswell	3566	Del Rio	944
Texarkana	368	Louisville	525	NEW YORK		El Paso	3778
CALIFORNIA		LOUISIANA		Albany	97	Fort Worth	576
Bakersfield	492	Baton Rouge	76	Binghamton	1638	Galveston CO	54
Bishop	4145	Lake Charles	32	Buffalo	768	Galveston	138
Blue Canyon	5283	New Orleans CO	53	New York Central Park	156	Houston CO	62
Burbank	725	New Orleans	3	New York CO	314	Laredo	416
Eureka CO	60	Shreveport	249	Rochester	523	Lubbock	3241
Fresno	327	MAINE		Schenectady	217	Midland	2862
Los Angeles CO	512	Caribou	628	Syracuse	596	Port Arthur	34
Los Angeles	104	Portland	103	NORTH CAROLINA		San Angelo	1908
Mt. Shasta CO	3587	MARYLAND		Asheville	2253	San Antonio	693
Oakland	7	Baltimore CO	----	Charlotte	774	Victoria	117
Red Bluff	353	Baltimore	123	Greensboro	886	Waco	508
Sacramento	25	Frederick	----	Hatteras CO	11	Wichita Falls	1030
Sandberg	4523	MASSACHUSETTS		Raleigh	376	UTAH	
San Diego	87	Blue Hill. Obs.	640	Wilmington	38	Milford	5097
San Francisco CO	----	Pittsfield	1169	Winston-Salem	978	Salt Lake City	4357
San Francisco	18	MICHIGAN		NORTH DAKOTA		VERMONT	
Santa Maria	238	Alpena	609	Bismarck	1677	Burlington	403
COLORADO		Detroit	730	Devils Lake CO	1478	VIRGINIA	
Alamosa	7543	Detroit (Willow Run)	777	Fargo	940	Lynchburg	937
Colorado Springs	6170	East Lansing CO	----	Williston CO	1878	Norfolk	30
Denver	5292	Escanaba CO	612	OHIO		Richmond	164
Grand Junction	4602	Flint	766	Akron	1052	Roanoke	1176
Pueblo	4690	Grand Rapids	707	Cincinnati CO	627	WASHINGTON	
CONNECTICUT		Marquette CO	734	Cincinnati Obs.	----	Olympia	200
Bridgeport	17	Muskegon	633	Cleveland	762	Seattle CO	----
Hartford	159	Sault Ste. Marie	614	Columbus CO	----	Seattle	368
New Haven	13	MINNESOTA		Columbus	822	Seattle-Tacoma	1929
DELAWARE		Duluth	1133	Dayton	1003	Spokane	3967
Wilmington	80	International Falls	1126	Sandusky CO	629	Stamper Pass CO	86
DISTRICT OF COLUMBIA		Minneapolis	919	Toledo	692	Tatooch	991
Washington CO	----	Rochester	1021	Youngstown	1186	Walla Walla CO	1076
Wash. Nat'l. AP	112	St. Cloud	1043	OKLAHOMA		WEST VIRGINIA	
FLORIDA		MISSISSIPPI		Oklahoma City	1214	Charleston	909
Apalachicola	35	Jackson	331	Tulsa	674	Elkins	----
Daytona Beach	41	Meridian	375	OREGON		Huntington CO	----
Fort Myers	12	Vicksburg CO	247	Astoria	22	Parkersburg CO	637
Jacksonville CO	----	MISSOURI		Burns	4162	WISCONSIN	
Jacksonville	31	Columbia	784	Eugene	373	Green Bay	617
Key West CO	21	Kansas City	963	Meacham	4056	La Crosse	672
Lakeland CO	----	St. Joseph	----	Medford	1329	Madison	474
Miami CO	----	St. Louis CO	564	Pendleton	1495	Milwaukee	681
Miami	25	St. Louis	564	Portland	154	WYOMING	
Miami Beach	----	Springfield	1324	Roseburg	510	Casper	5290
Orlando	119	MONTANA		Salem	201	Cheyenne	6144
Pensacola CO	56	Billings	3570	Sexton Summit CO	3841	Lander	5352
Tallahassee	68	Glasgow	2086	PENNSYLVANIA		Sheridan	3790
Tampa	35	Great Falls	3657	Allentown	385	PACIFIC AREA	
West Palm Beach	21	Havre	2507	Harrisburg	378	Canton Island	11
GEORGIA		Helena	4123	Philadelphia CO	----	Hilo, T.H.	36
Athens	811	Kalispell	----	Philadelphia	114	Honolulu, T.H.	15
Atlanta	1173	Miles City	3263	Pittsburgh CO	----	Koror, T.H.	109
Augusta	182	Missoula	3263	Pittsburgh	842	Lihue, T.H.	148
Columbus	394	NEBRASKA		Reading CO	323	Majuro	10
Macon	370	Grand Island	1856	Scranton	948	Ponape CO	151
Rome	643	Lincoln CO	----	Shippingport CO	----	Truk (Moan Island)	11
Savannah	65	Norfolk	1551	Williamsport	525	Wake Island	13
IDAHO		North Omaha	1323	RHODE ISLAND		Yap CO	56
Boise	2739	Omaha	1105	Block Island	111	WEST INDIES	
Idaho Falls CO 46W	4939	Scottsbluff	3958	Providence	159	San Juan CO	----
Idaho Falls CO 42NW	----	Valentine CO	2590	SOUTH CAROLINA		San Juan, P.R.	62
Lewiston	1436	NEVADA		Charleston CO	----	ALASKA	
Pocatello	4478	Ely	5078	Charleston	46	Anchorage	132
ILLINOIS		Las Vegas	1869	Columbia	225	Annette	110
Calro CO	357	Reno	4527	Florence	151	Barrow	13
Chicago	623	Winnemucca	4339	Greenville	1040	Bethel	36
Moline	606	INDIANA		Spartanburg	824	Cold Bay	103
Peoria	609	Evansville	431	SOUTH DAKOTA		Cordova	40
Springfield	636	Fort Wayne	857	Huron	1301	Fairbanks	454
INDIANA		Indianapolis	823	Rapid City	3259	Juneau	24
South Bend	773	South Bend	773	Sioux Falls	1427	King Salmon	49
				TENNESSEE		Kotzebue	16
				Bristol	1525	McGrath	338
						Nome	22
						Northway	1721
						St. Paul Island	28
						Yakutat	31

These are the elevations to which station pressure values in Table 2, monthly Climatological Data, National Summary, pertain. They are the elevations (in feet above mean sea level) of the barometer as of January 1,

1900, or at the time of establishment of station subsequent to that date. Average monthly station pressures continue to be reduced to these elevations to provide homogeneity of data over a long period of time.

GENERAL SUMMARY OF TORNADES-1958

Compiled by L. V. Wolford, Office of Climatology
U. S. Weather Bureau, Washington, D. C.

During 1958, 565 tornadoes and 80 waterspouts* were reported as occurring on 180 days in the United States, with property damage exceeding \$28 million, loss of 66 lives, and injuries to 572 persons. In addition 724 funnel clouds which remained aloft were observed. Five of the year's tornadoes crossed state boundaries, but none of these were particularly damaging. Except for 1957 and 1955, a greater number of tornadoes occurred in 1958 than in any other year during the period 1916 to 1958. The improvement of our storm-warning network, the progress made in tornado forecasting, and public alertness and cooperation in recent years are factors favoring the reporting of a greater number of tornadoes than in earlier years. Property losses, although considerably less than last year, were exceeded by only nine previous years. The loss of life was less than half the annual average; only 8 of the 43 years of record had a lower toll.

We wish to emphasize that in dealing with tornado statistics it is impractical to make an accurate comparison with previous years, particularly the number of tornadoes, tornado days, and property damage, because of the increased alertness and general interest in these storms, advances in observational and forecasting techniques, and changes in the monetary value.

Fifty-two of the tornadoes moved over open country and 37 touched ground briefly, causing no damage. Only four of the waterspouts caused damage. This leaves a total of 471 damaging tornadic storms for the year.

Tornadoes occurred during each month of 1958. They were particularly active on November 17 when 34, the greatest number for a single day of the year, were reported. June, with 128 of these storms, exceeded May which is usually the month of maximum occurrence. July was second, with 119 on 30 days. July 9 was the only day during that month on which no such storms occurred anywhere in the country. April with 78 tornadoes was third, followed by May with 69. Forty-five occurred in each of the months August and November, 24 in September, 20 in February, 15 in March, 12 in January, 9 in October, and only 1 in December. In addition to these tornadoes, waterspouts also occurred during 10 months of the year. Nineteen were reported in September, 11 in October, 10 each in June and August, 9 in May, 5 in July, 2 each in January, March, and April, and 1 in November.

Forty-one states experienced tornado occurrences during 1958. About 39 percent of the country's tornadoes were reported in the four states of Kansas, Nebraska, Oklahoma, and Texas. Texas recorded 74 tornadoes, for the highest state total in the Nation. Nebraska was next with 54, followed by Kansas with 49, and Oklahoma with 42 of these storms. Delaware, Idaho, Pennsylvania, and Virginia each had one occurrence, and Alaska, the District of Columbia, Nevada, New Hampshire, Oregon, Rhode Island, Utah, Vermont, West Virginia, Hawaii, and the West Indies reported none.

The death toll of 66 resulted from tornadoes on 12 days during 7 months and in 11 states. Forty-two deaths occurred on 2 days in June for the highest monthly total of the year; 27, the greatest number occurring on a single day, were reported from three tornadoes on June 4 in Wisconsin, and 15 from one tornado on June 10 in Kansas. Three tornadoes on February 26 in Mississippi caused 13

deaths, for the second highest monthly toll. Four deaths occurred in each of the months of April and October and one each in July, August, and September. Wisconsin suffered the greatest loss of 27 lives, of which 19, the most deaths from a single tornado, resulted from the disastrous Woodville-Colfax storm of June 4. The El Dorado, Kans., storm on June 10 was responsible for 15 deaths, the second highest total on a single day and also second highest from a single tornado during the year. Seven of the 13 deaths in Mississippi on February 26 were the result of one tornado. Illinois, Minnesota, and Missouri each reported the loss of two lives and Alabama, Florida, Massachusetts, South Carolina, and Texas one each.

Over one-half of the 1958 estimated property damage of over \$28 million resulted from tornadoes in June, principally from the three very damaging ones in Wisconsin and Kansas on the 4th and 10th. The Woodville-Colfax, Wis., tornado on the 4th was the most disastrous of the year, with destruction of property estimated at over \$7 million, 19 deaths, and 110 personal injuries. On June 10, the tornado at El Dorado, Kans., caused damage of \$3 million, loss of 15 lives, and injuries to 50 persons. The third most destructive tornado was reported on June 4, at Chippewa Falls, Wis., where losses were placed at \$1-1/2 million, 4 deaths, and 56 injuries. April ranked second in the estimated property damage of over \$5 million. Tornadoes in Texas were responsible for over 50 percent of the April losses. Near McKinney, Tex., damage of nearly \$1-1/2 million resulted from the tornado on April 27. Losses of over \$2 million placed May in third place in the value of property destroyed. Damages during October, February, and July were well over \$1 million each. For the remaining 6 months, estimated losses ranged from over \$900 thousand in November to \$20 thousand in December. About 82 percent of the annual damage occurred during the 4 months, April through July. Wisconsin suffered the greatest destruction of property, estimated at over \$10 million for the year. Texas followed with nearly \$4 million and Kansas with slightly over \$3 million. Nearly 70 percent of the country's yearly losses occurred in these 3 States. Illinois, Florida, and Mississippi each had damage of over \$1 million. The annual loss in Delaware was reported as negligible, and damage in Montana, Pennsylvania, and South Dakota was placed at only \$4 to \$5 thousand each.

Tornado paths were generally short and narrow during 1958, averaging only 9.3 miles in length and 153 yards in width. Of the 395 tornadoes for which the lengths of paths were given, 100 were merely designated as short and 74 more had paths of 1/2 mile or less, making about 44 percent of the tornadoes with paths of probably 1/2 mile or less in length. Eighty-three percent traveled 10 miles or less. The remaining 17 percent, or 68 tornadoes, traveled for more than 10 miles. Three tornadoes moved for distances of 80 miles, the longest reported paths of the year. On May 3, a Texas tornado passed through Gregg, Harrison, Cass, and Smith Counties in an 80-mile long path. The other two 80-mile long paths were not continuous, but moved intermittently over 3 counties in Iowa on June 22 and over 5 counties in Illinois on the night of October 8 and 9. On February 26, three tornadoes in Mississippi covered distances of 70, 65, and 60 miles respectively. The boundary-cross-

* Nine of these touched land as well as water and are included in the tornado total also.

GENERAL SUMMARY OF TORNADOES—Continued

ing tornado on May 24 covered 17 miles in Minnesota, crossed to Wisconsin and continued for 50 more miles. Another boundary-crossing tornado on April 24 passed through two counties in Louisiana and three in Mississippi for a total distance of 65 miles. A 60-mile long path was reported in Wisconsin on June 4. The tornado of April 5 in Grant County, Indiana, had both the shortest and narrowest reported path of the year (30 yards long and 5 yards wide). Tracks of the 1958 tornadoes are presented at the end of this publication.

About 75 percent of the 625 tornadic storms on which the time of occurrence was given struck between noon and midnight and 25 percent during the a.m., hours in 1958. The greatest activity was

between 3 and 5 p.m., when over 22 percent were reported to have occurred. Only one percent struck between 3 and 4 a.m., for the hour of least frequency.

The prevailing direction of movement of tornadic storms during 1958 was, as usual, from the southwest to the northeast, with over 45 percent traveling in that direction. Twenty-six percent came from the west and nearly 16 percent from the northwest; thus, approximately 87 percent moved from a general westerly direction. About six percent moved from the south and nearly three percent from the north, leaving only four percent traveling from all easterly directions. See the tornado rose for 1958 presented in figure 1.

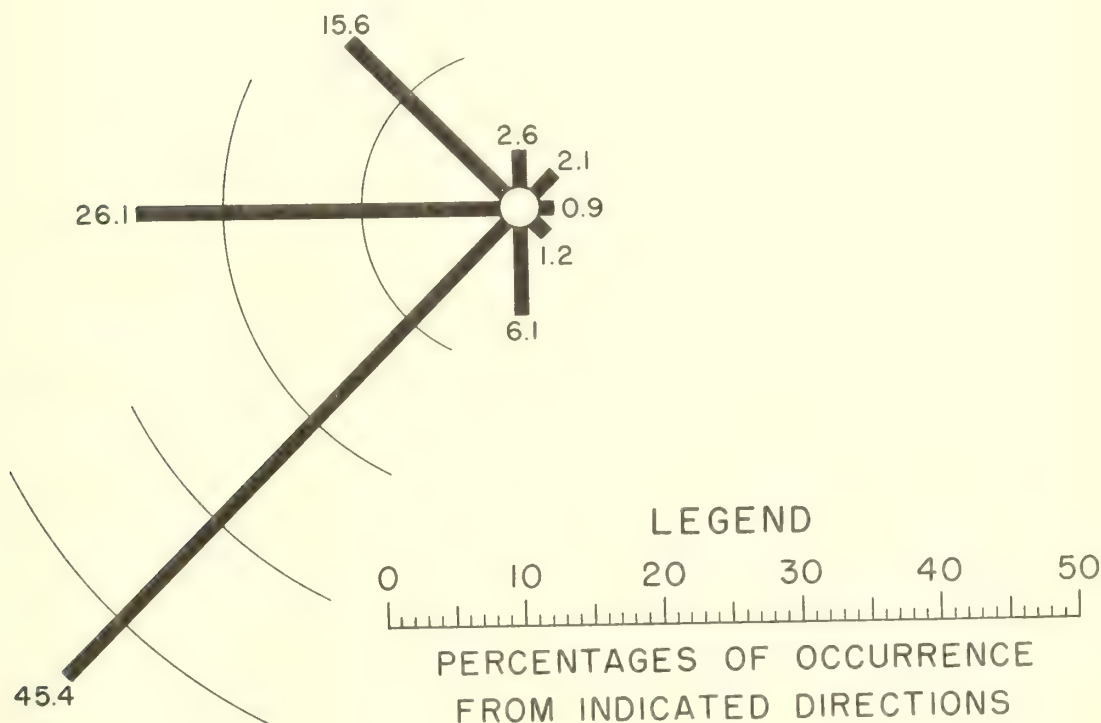


FIGURE 1.—TORNADO ROSE FOR THE UNITED STATES, GIVING THE PERCENTAGE OF TORNADOES MOVING FROM THE INDICATED DIRECTIONS DURING 1958.

TORNADO DATA

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
ALABAMA										
1. Jan. 31	1:30 p.m.	Franklin	NE	3	400	0	0	4	1	Destroyed 1 house and damaged 3 others near Belgreen.
2. Feb. 6	2:05 p.m.	Pike	NE	12	200	0	0	4	1	Skipping but straight path of tornado through fields and pastures. 1 house and 1 barn destroyed. About a dozen houses and barns damaged. Path from west of Goshen to northwest outskirts of Troy.
3. Feb. 26	Evening	Choctaw	NE	20	60	0	0	5	1	Skipping path from Isney to past Gilbertown and Toxey. Damage includes \$50,000 in timber. In addition windstorms of undetermined character listed as doing damage in Jachin and Choctaw, in northern part of county. About 8 homes, 20 barns, and 10 other buildings damaged or destroyed by tornado.
4. Feb. 26	11:30 p.m.	Escambia	(a)	(a)	(a)	0	0	4	1	Suspected tornado at Robinsonville, 4 miles northeast of Atmore, some barns leveled and many more damaged. Telephone poles downed.
5. Feb. 27	1:30 a.m.	Montgomery and Macon	NNE	13	150	0	0	4	1	Continuous but weak path from 2 miles south of Mathews, Montgomery County to 2 miles east of Shorter, Macon County, through sparsely settled pasture and woodland. Damage mostly to tenant houses and barns. 2 cows and 7,400 hens killed.
6. Apr. 5	9 p.m.	Colbert and Lauderdale	NE	18	100	1	0	$\frac{1}{5}$	C	Began 3 miles south of Leighton, passed southeast of Spring Valley, 3 miles north of Creek community, east of Wheeler Dam, and lifted near Rogersville in Lauderdale County.
7. Apr. 5	10 p.m.	Lawrence and Limestone	NE	25	100	0	0	$\frac{1}{4}$	C	From Town Creek, Lawrence County, to 1 mile east of the bridge on Elk River in Limestone County, last reported hitting in Clement community in Limestone County. Path of this tornado about 4 miles southeast of one beginning near Leighton in Colbert County.
8. Apr. 5	10:15 p.m.	Limestone	NE	15	50	0	0	$\frac{1}{5}$	C	Began west of Athens, last reported at Thach.
9. Apr. 5	10:30 p.m.	Madison	NE	(a)	(b)	0	0	4	1	Funnel cloud heard passing over Madison, shortly thereafter it dipped in northwestern edge of Huntsville, 7 miles away.
10. Apr. 5	11 p.m.	Cullman and Morgan	NE	8	200	0	0	$\frac{1}{5}$	C	From Cross Rock and Vinemont to east of Eva in Morgan County.
11. Apr. 5	11:20 p.m.	Cullman and Morgan	NE	7	(a)	0	0	$\frac{1}{4}$	C	From Ebenezer to Union Hill in Morgan County. Passed 2 miles south of Lacon and hit southeastern edge of Cold Springs. House which failed to disintegrate completely reported shoved 2 feet into ground. The path of this storm was 3 miles northwest of path of one reported at 11 p.m.
12. Apr. 5	Evening	Morgan	NE	(c)	100	0	0	3	1	Brief dip of tornado on farm southeast of Decatur destroyed barn.
13. Apr. 6	12:03 a.m.	Marshall and Jackson	NE	28	50-100	0	1	$\frac{1}{5}$	C	From Albertville to Section and Macedonia in Jackson County.
14. Apr. 29	6 a.m.	Jefferson	NE	1/2	100	0	0	4	1	Six miles south-southwest of McCalla.
15. Apr. 29	6 a.m.	Jefferson	NE	1/4	300	0	0	4	1	"Roaring" tornado at Gardendale dipped once. In addition to carports and garages destroyed, a jeep truck lifted and dropped 8 feet from original position.

See reference notes at end of table. # Waterspouts are included in this listing.

TORNADO DATA

YEAR 1958

YEAR 1958										
State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
ALABAMA (Cont'd)										
16. Apr. 29	6:30 a.m.	Chilton	(a)	(c)	(b)	0	0	3	1	Suspected tornado 2 miles east of Clanton.
17. Apr. 29	6:40 a.m.	Chilton	NE	12	100	0	0	3/4	C	Skipping path from Jemison to Friendship, Walnut Creek, and Sunshine communities.
18. Apr. 29	6:40 a.m.	Etowah	NE	(c)	(b)	0	0	4	1	Suspected tornado in Camp Sibert area of Gadsden. Damage highly localized.
19. May 25	4 p.m.	Morgan	NE	(a)	50	0	1	4	1	Small tornado moved from backwater area into harbor at Decatur where damage to boats and boathouses. Storm moved from harbor on across Tennessee River. A number of boats near storm path not capsized, while boats in its path blown up hill a considerable distance. One girl injured slightly when blown from near boathouse into water about 25 feet from shore.
20. June 2	4 p.m.	Houston	(a)	1/3	200	0	0	3	(d)	Several large trees snapped off above ground, 9 buildings damaged 1 mile north of Columbia in rural area. Crop damage was to field of corn.
21. June 11	7:54 a.m.	Baldwin	(a)	(a)	(a)	0	0	1	1	Waterspout reported 1/2 mile offshore, moving toward Gulf Shores.
22. June 15	8:25 p.m.	Mobile	(a)	(a)	(a)	0	0	1	1	Waterspout reported 50 miles south of Mobile.
23. Sept. 20	4:30 p.m.	Lauderdale	NE	1	(b)	0	0	4	1	Just north of Elgin Cross Roads, tornado crossed old Lexington Road and new Alabama Highway 101. Damaged 6 houses and 1 barn.
ALASKA (None)										
ARIZONA										
1. Mar. 11	2:30 p.m.	Maricopa	E	3/4	30	0	0	3	1	Possible tornado. Damage to hatchery in south Phoenix.
2. May 11	10:30 a.m.	Yavapai	N	(a)	(a)	0	0	1	1	Funnel cloud touched ground in open country 8 miles northwest of Paulden.
3. July 24	Afternoon	Coconino	N	1/2	200	0	0	3	1	Possible tornado downed marketable timber on south rim of Grand Canyon.
4. Sept. 24	10 a.m.	Maricopa	E	4	(a)	0	0	1	1	Funnel cloud skipped across open desert 8 miles northeast of Mesa.
ARKANSAS										
1. Apr. 3	12:15 a.m.	Searcy	E	15	500	0	0	5	3	Two funnels observed near Marshall, 1 of which touched ground, destroying a hangar and 3 houses. Hailstones to 3 inches in diameter.
2. Apr. 20	3 p.m.	Drew	(a)	(a)	(a)	0	0	(e)	1	Several houses damaged at Winchester.
3. July 5	3 p.m.	Jackson	NW	(a)	(a)	0	0	(d)	1	Funnel dipped down 1 mile north of Newport. Shed destroyed.
4. Sept. 16	4:30 p.m.	St. Francis	(a)	(a)	(a)	0	0	(d)	(d)	Small funnel dipped down 3 miles north of Wheatley, turning over henhouse, destroying trees, and flattening field of rice.
5. Nov. 14	7 p.m.	Conway	E	12	(a)	0	0	4	1	Tornado struck Ada Valley community, causing \$8,000 damage, then went aloft and was next reported at Overcup community, where 2 funnels sighted. Damage at this point \$5,000.
6. Nov. 15	3:45-4 p.m.	Cleburne	NE	1/2	10	0	0	3	1	Two houses damaged 5 miles south of Heber Springs.

See reference notes at end of table. # Waterspouts are included in this listing.

TORNADO DATA

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
ARKANSAS (Cont'd)										
7. Nov. 17	2:30 p.m.	Hot Spring	NE	(a)	(a)	0	0	4	1	Tornado struck Point Cedar-Lambert-Bismarck area. Church destroyed. 2 houses and a barn damaged.
CALIFORNIA										
1. Jan. 10	2:45 a.m.	Del Norte	NE	3/4	60	0	0	3	(a)	Occurred in Crescent City area.
2. Jan. 10	5:55 a.m.	Sonoma	ENE	15	25-100	0	0	4	(a)	Path from Bodega Bay to midway between Sebastopol and Santa Rosa.
3. Feb. 3	10 a.m.	Mendocino	N	1	(b)	0	0	(d)	1	Waterspout along beach at Gualala, dissipated on shore.
4. Feb. 28	5 a.m.	Madera	NE	1/2	80-100	0	0	(d)	1	Small tornado at O'Neals investigated by Weather Bureau official.
5. Mar. 12	11 a.m.	Madera	NNE	(c)	(b)	0	0	2	1	Small tornado at Madera.
6. Mar. 27	3:45 p.m.	San Diego	ENE	(a)	25	0	0	1	1	Waterspout 3 miles southwest of North Island.
7. Mar. 28	4:40 p.m.	San Diego	(a)	(a)	(a)	0	0	1	1	Waterspout observed offshore from Ream Field Naval Auxiliary Air Station.
8. Mar. 29	1:40 p.m.	Humboldt	NE	1	200	0	0	3	1	Small tornado came ashore as waterspout at McKinleyville.
9. Apr. 1	12:25 a.m.	San Mateo	NE	1/4	65	0	0	4	1	Small tornado at San Francisco International Airport.
10. Apr. 1	5 a.m.	Stanislaus	NE	2	20	0	0	3	(a)	Small tornado 2-1/2 miles southeast of Turlock.
11. Apr. 1	9:30 a.m.	Orange	NE	1/2	30	0	0	2	(a)	Small waterspout came ashore at Laguna Beach.
12. May 22	6 p.m.	Siskiyou	NW	3	50	0	0	4	1	Small tornado south of Tulelake.
13. Oct. 24	9:54 a.m.	San Diego	NNE	(a)	(a)	0	0	1	1	Waterspout observed off Point Loma.
14. Oct. 24	A.m.	San Diego	(a)	(a)	(a)	0	0	1	1	7 separate waterspouts observed offshore by U.S.S. Thetis Bay.
15. Oct. 24	A.m.	San Diego	(a)	(a)	(a)					
16. Oct. 24	A.m.	San Diego	(a)	(a)	(a)					
17. Oct. 24	A.m.	San Diego	(a)	(a)	(a)					
18. Oct. 24	A.m.	San Diego	(a)	(a)	(a)					
19. Oct. 24	A.m.	San Diego	(a)	(a)	(a)					
20. Oct. 24	A.m.	San Diego	(a)	(a)	(a)					
21. Nov. 10	10:24 a.m.	San Diego	(a)	(a)	(a)	0	0	1	1	Waterspout observed by pilot of Navy aircraft 5 to 10 miles northwest of Point Loma.
COLORADO										
1. May 7	12:05 a.m.	Logan	NW	(a)	(a)	0	0	1	1	Funnel cloud touched ground near Fleming.
2. May 12	5:30 p.m.	Weld	N	(a)	(a)	0	0	3	1	Tornado damaged 4 sheds on dairy farm 2 miles east of Evans.
3. May 13	7:25 p.m.	Yuma	(a)	(a)	(a)	0	0	(d)	1	Hit farm 29 miles east of Akron.
4. June 8	5 p.m.	Weld	E	5-10	(a)	0	0	3	1	Touched ground a few miles east of Hudson, destroying barn and damaging other buildings on 2 farms.
5. June 15	8:45 p.m.	Yuma	E	(a)	(a)	0	0	3	(a)	Destroyed barn and feed bunks on farm 1 mile east of Yuma, also leveled TV antennas and power poles.
6. July 1	6:30 p.m.	Weld	N	(a)	(a)	0	0	3	3	Suspected tornado southeast of Platteville. Unroofed 4 barns and moved granary into field. Wheat in windrows scattered.
7. July 7	11:30 p.m.	Logan	(a)	(a)	(a)	0	0	3	1	Suspected tornado 3 to 4 miles west of Sterling blew down 6 telephone poles and slightly damaged warehouse.
8. July 8	4:38 p.m.	Kiowa	(a)	(a)	(a)	0	0	1	1	Pilot reported tornado touching ground briefly 30 miles north of Lamar.

See reference notes at end of table. # Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
COLORADO (Cont'd)										
9. July 16	2:40 p.m.	Washington	(a)	(a)	(a)	0	0	1	1	Touched ground 40 miles southwest of Akron.
10. July 18	11:15 a.m.	Alamosa	N	(a)	(a)	0	0	1	1	Touched ground for 7 minutes 2 miles northwest of Alamosa.
11. July 20	12:10 p.m.	Elbert	(a)	(a)	(a)	0	0	1	1	Farmer reported seeing tornado touch ground once near Elizabeth.
12. July 20	Afternoon	Weld	(a)	(a)	(a)	0	0	1	1	Touched ground in northwestern part of county.
13. July 20	4:30 p.m.	Washington	(a)	(a)	(a)	0	0	3	1	Buildings destroyed on farm 4 miles north of Platner.
14. July 20	4:30 p.m.	Cheyenne	(a)	(a)	(a)	0	5	4	1	Tornado east of Cheyenne Wells tore roof off house, damaging furnishings, destroyed barn and garage, and car accident injured several persons.
15. July 21	Evening	Huerfano	(a)	(a)	(a)	0	0	3	1	Haystacks blown down on farm 16 miles northeast of Walsenburg.
16. July 22	(a)	Prowers	S	(a)	(a)	0	0	1	1	Funnel formed in southern part of county, north of Two Buttes, touching ground twice.
17. July 23	9 p.m.	Weld	(a)	(a)	(a)	0	0	3	1	Roofs of 4 farm buildings blown off on 2 farms 8 miles east of Longmont.
18. Sept. 9	5:55 p.m.	Kit Carson	(a)	(a)	(a)	0	0	1	1	Small tornado reported touching ground 12 miles northeast of Flagler.
CONNECTICUT										
1. Aug. 15	12:50 p.m.	Fairfield	E	1/400	75	0	0	3	1	Storm path largely in forested area in town of Easton. Cooperative observer caught in storm witnessed whirling mass of tree limbs and debris some 100 feet above ground and had his pickup truck lifted and dropped upright about 20 feet away. Many trees in forest twisted off at varying heights above ground. Near by reservoir covered with compact mass of debris, having been deposited there as storm passed over.
2. Aug. 21	8:20 p.m.	Litchfield	NNE	1/350	50	0	0	(d)	1	Possible tornado in town of Colebrook traveled path down forested ridge and passed between 2 houses before leaving ground. Many large oaks and maples twisted off at varying heights above ground and transformer loosened on utility pole. Witness described noise like roar of train going over bridge.
3. Sept. 7	4:15 p.m.	Tolland and Windham	ENE	1-1/4	100	0	0	5	1	Tornado first struck poultry farm in Mansfield, Tolland County. Chicken coop demolished and nearby homes damaged by flying roof debris; second coop moved on foundation, while nearby third coop untouched. Damage estimated at \$25,000. Storm moved about 1 mile to Windham County Airport where 12 small aircraft variously damaged with 2 considered total loss. Hangar heavily damaged and roof of adjoining office building partially lifted off wall on windward side. Just east of airport, small garage unroofed and trees, chimneys, and TV aerials downed or twisted off before tornado left ground.
DELAWARE										
1. July 14	12:30 p.m.	New Castle	N	(a)	(a)	0	0	(d)	1	Lawn furniture, awnings, clothes, and other objects carried through the air. 25-by 10-foot porch, weighing 500 pounds, blown against house trailer in Claymont trailer park. Tornado accompanied by light

See reference notes at end of table. # Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
DELAWARE (Cont'd)										rain appeared to move up river for about 3 minutes.
DISTRICT OF COLUMBIA (None)										
FLORIDA										
1. Jan. 2	Early a.m.	Pasco	(a)	(a)	(a)	0	1	(e)	1	Suspected tornado at New Port Richey overturned or damaged 3 trailers.
2. Jan. 21	9:45 a.m.	Levy	E	(a)	(a)	0	0	1	1	Waterspout seen from Cedar Key.
3. Jan. 21	11:20 a.m.	Hillsborough	E	2	100	0	0	1	1	Path over open area near Knights.
4. Jan. 21	12:30 p.m.	Polk	ESE	(a)	(a)	0	0	1	1	Cloud touched ground momentarily at Lake Conine.
5. Jan. 21	1:40 p.m.	Brevard	(a)	(a)	(a)	0	0	1	1	Waterspout moved ashore from Banana River, overturning 1 trailer at Cocoa Beach.
6. Jan. 26	11:50 a.m.	De Soto	(a)	(a)	(a)	0	0	(e)	1	Suspected tornado damaged several buildings at Arcadia.
7. Jan. 26	(a)	Palm Beach	(a)	(a)	(a)	0	0	1	1	Waterspout offshore from Palm Beach.
8. Mar. 6	1 a.m.	Okaloosa	NE	(a)	(a)	0	0	4	1	In Holt-Galliver-Baker area buildings damaged and unroofed.
9. Mar. 18	11 a.m.	Palm Beach	(a)	(c)	(b)	0	0	(e)	1	Near Delray Beach, buildings on chicken ranch destroyed, killing many chickens.
10. Apr. 9	Afternoon	Bay	(a)	(c)	(b)	0	0	(d)	1	Waterspout moved ashore at Mexico Beach damaging several buildings.
11. Apr. 15	Noon	Polk	E	(a)	300	0	7	4	1	Struck near Bereah.
12. Apr. 15	Noon	Hillsborough	E	(a)	(a)	0	0	1	1	Suspected tornado at Mullet Key in Tampa Bay.
13. Apr. 15	12:20 p.m.	St. Johns	E	3	75	0	8	5	1	Struck St. Augustine, 6 homes destroyed, 15 others damaged; 12 other buildings damaged or destroyed.
14. Apr. 15	1:09 p.m.	St. Lucie	ESE	13	(a)	0	18	6	1	Struck Ft. Pierce, 28 homes destroyed, 63 others damaged; over 130 other buildings damaged or destroyed.
15. Apr. 15	3:30 p.m.	Lee	(a)	(a)	(a)	0	0	1	1	Waterspout near Ft. Myers.
16. Apr. 21	10 a.m.	Palm Beach	(a)	(a)	(a)	0	0	1	1	Waterspout east of Palm Beach.
17. Apr. 22	1:45 p.m.	Lee	E	1,700	100	0	0	3	1	Waterspout moved ashore near Iona, uprooting trees and tearing down powerlines.
18. Apr. 22	2:30 p.m.	Palm Beach	SE	(a)	(a)	0	3	4	1	Struck West Palm Beach. Houses unroofed and large trees blown down or broken off.
19. Apr. 22	Afternoon	Palm Beach	SE	(c)	(b)	0	0	3	1	Possible tornado struck Delray Beach.
20. May 6	2:30 p.m.	Volusia	(a)	(a)	(a)	0	0	1	1	Waterspout 10 miles northeast of Daytona Beach Airport.
21. May 11	11:12 a.m.	Hillsborough	(a)	(a)	(a)	0	0	1	1	Waterspout in Gulf of Mexico near Tampa.
22. May 13	5:35 p.m.	Hillsborough	(a)	(a)	(a)	0	0	1	1	Waterspout in Gulf of Mexico near Tampa.
23. May 28	8:56 a.m.	Dade	(a)	(a)	(a)	0	0	1	1	Waterspout off Miami shore.
24. May 28	A.m.	Palm Beach	(a)	(a)	(a)	0	0	1	1	Waterspouts reported off coast between West Palm Beach Beach and Boynton Beach.
25. May 28	A.m.	Palm Beach	(a)	(a)	(a)	0	0	1	1	
26. May 29	2:47 p.m.	Monroe	(a)	(a)	(a)	0	0	1	1	Waterspout 25 miles north-northeast of Key West.
27. June 22	2 p.m.	Duval	(a)	(a)	(a)	0	0	1	1	Waterspout 25 miles northeast of Jacksonville.

See reference notes at end of table. # Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

YEAR 1935										
State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
FLORIDA (Cont'd)										
28. June 25	10:30 a.m.	Hillsborough	(a)	(a)	(a)	0	0	1	1	Waterspout 30 miles southwest of Tampa.
29. June 27	4:30 p.m.	Brevard	(a)	(a)	(a)	0	0	1	1	Touched ground in uninhabited area 15 miles west of Melbourne.
30. June 27	6 p.m.	Indian River	E	(a)	(a)	0	0	1	1	Touched ground in uninhabited area 7 miles west of Fellsmere.
31. June 28	6:45 p.m.	Hillsborough	(a)	(a)	(a)	0	0	1	1	Waterspout offshore in Tampa area.
32. June 30	8:30 p.m.	Hernando	(a)	(a)	(a)	0	0	1	1	Waterspout 10 miles northwest of Bayport.
33. July 1	5:10 p.m.	Manatee	(a)	(a)	(a)	0	0	1	1	Two waterspouts in Gulf near Anna Maria Island.
34. July 1	5:10 p.m.	Manatee	(a)	(a)	(a)					
35. July 21	6 p.m.	Polk	S	(c)	(b)	0	0	3	1	Near Winter Haven, barn damaged.
36. July 25	Afternoon	Dade	(a)	(a)	(a)	0	0	1	1	Two waterspouts over Biscayne Bay area near Miami.
37. July 25	Afternoon	Dade	(a)	(a)	(a)					
38. July 25	4:10 p.m.	Duval	NE	(a)	(a)	0	0	1	1	Touched ground in uninhabited area near Baldwin.
39. Aug. 3	4-5 p.m.	Palm Beach	E	(a)	(a)	0	0	3	1	Near Boynton and Delray Beaches.
40. Aug. 8	9 a.m.	Volusia	(a)	(a)	(a)	0	0	1	1	Three waterspouts 17 miles east-northeast of Daytona Beach.
41. Aug. 8	9 a.m.	Volusia	(a)	(a)	(a)					
42. Aug. 8	9 a.m.	Volusia	(a)	(a)	(a)					
43. Aug. 11	11 a.m.	Dade	(a)	(a)	(a)	0	0	1	1	Waterspout 10 miles north of Miami.
44. Aug. 11	(a)	Palm Beach	(a)	(a)	(a)	0	0	1	1	Waterspout 5 miles east of Boca Raton.
45. Sept. 2	(a)	Palm Beach	(a)	(a)	(a)	0	0	1	1	Two waterspouts near Palm Beach.
46. Sept. 2	(a)	Palm Beach	(a)	(a)	(a)					
47. Sept. 19	2:12 p.m.	Monroe	W	(a)	(a)	0	0	1	1	Waterspout seen near Key West.
48. Sept. 23	10 a.m.	Palm Beach	(a)	(a)	(a)	0	0	1	1	Waterspout seen 5 miles offshore from Palm Beach.
49. Sept. 28	5 a.m.	Manatee	(a)	150	(b)	0	0	3	1	Near Tallevast, buildings damaged.
50. Oct. 1	3:45 p.m.	Okaloosa	(a)	(a)	(a)	0	0	1	1	Waterspout seen near Valpariso.
51. Oct. 17	9 a.m.	Monroe	SW	(a)	(a)	0	0	1	1	Waterspout seen near Key West.
52. Oct. 19	3:30 a.m.	Sarasota	E	500	15	0	0	4	1	Struck Casey Key, damaging several beach residences.
53. Oct. 19	8:45 a.m.	Palm Beach and Martin	ENE	26	425	1	24	5	1	Struck Pahokee, Pratt, and Indian-town.
54. Oct. 31	1:30 p.m.	Manatee	E	3	200	0	4	5	1	Struck Palmetto, heavily damaging several buildings.
55. Dec. 11	5:45 p.m.	Sarasota	NE	(c)	(b)	0	1	4	1	Struck near Sarasota.
GEORGIA										
1. Jan. 24	2:50 p.m.	Bleckley and Pulaski	NE	1-1/2	200	0	16	5	1	Demolished 10 houses and damaged 50 others as it moved through southern residential section of Cochran. Four of injured hospitalized. Possibly same tornado caused considerable damage earlier in rural Pulaski County to southwest.
2. Jan. 31	11:15 p.m.	Bibb	E	5	6	0	0	5	1	Struck small area in south Macon, destroying a service station and a novelty shop and heavily damaging a grocery store and several other buildings.
3. Mar. 7	4 p.m.	Calhoun	E	2	200	0	2	3	1	Demolished several small farm buildings and damaged larger houses northwest of Leary.
4. Apr. 6	7 a.m.	Colquitt	NE	4	50	0	0	3	3	Three stock barns, 2 tobacco barns, and 1 residence damaged or destroyed 10 miles east of Moultrie.
5. Apr. 15	4:30 p.m.	Washington	NNE	3/4	200	0	0	3	1	Destroyed 3 small unoccupied houses and 1 barn and damaged 2 other houses at Riddleville.

See reference notes at end of table. # Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
GEORGIA (Cont'd)										
6. Apr. 22	8:30 a.m.	Dawson	NE	(c)	(b)	0	0	3	1	Overturned house trailer, unroofed 1 house, and twisted tops out of large trees at Dawsonville.
7. June 22	3:45 p.m.	Barrow	SE	1	50	0	0	(d)	(d)	Small funnel cloud dipped to ground briefly, causing minor damage to timber crops and farm buildings 5 miles northeast of Winder.
8. Aug. 17	4 p.m.	Grady	E	(c)	(b)	0	0	3	1	Unroofed store and caused other damage in small area of downtown Cairo.
9. Sept. 21	A.m.	Cobb	(a)	(c)	30	0	0	3	1	Witnesses reported seeing small funnel-shaped cloud swoop down momentarily then rise up again at Austell.
10. Nov. 28	6:35 p.m.	Crisp	ENE	(c)	(b)	0	0	4	1	One house almost demolished and others damaged. Small buildings destroyed and utility lines damaged.
11. Nov. 28	7:15 p.m.	Dodge	NE	1,000	(b)	0	1	5	1	One residence completely destroyed and others heavily damaged. Man slightly injured.
IDAHO										
1. June 27	11:45 a.m. 12:05 p.m.	Valley	NE	5	400	0	0	4	3	Near Donnelly, tornado moved across several patches of thick pine timber, twisted off trees 10 to 20 feet above ground. Airplane and 2 trailers damaged.
ILLINOIS										
1. Apr. 5	2:20 p.m.	St. Clair, Clinton, Bond, and Fayette	NE	75	100	1	7	5	(a)	Path intermittent from New Athens to west of Vandalia. Heaviest damage and injuries at Fayetteville where summer cottages destroyed. Hit Breese at 2:55 p.m.
2. Apr. 5	3:05 p.m.	Randolph	NE	5	100	0	0	4	(a)	Damaged 8 houses in 3 parts of Chester. Went aloft over Steeleville.
3. Apr. 5	4:10 p.m.	Jackson, Perry, and Franklin	NE	20	100	0	6	5	(a)	Damaged or destroyed 70 homes on north side of Sesser. Some damage earlier at Vergennes and Elkhaville.
4. Apr. 5	4:25 p.m.	Ford	NE	5	80	0	0	3	1	Struck 2 farmsteads between Sibley and Melvin.
5. May 3	1:15-2:50 p.m.	Randolph, St. Clair, Washington, Clinton, and Marion	NE	70	100	0	0	4	(a)	Rapid movement. Intermittent and variable path. Heaviest damage to about 6 farmsteads near Sandoval where witnesses reported 2 simultaneous funnels.
6. May 3	3 p.m.	Madison	(a)	1	10	0	0	3	1	Barn wrecked and picnic grounds damaged near Godfrey.
7. May 3	3:30 p.m.	Madison	NE	5	10	0	1	4	1	Struck 3 times in or near Collinsville. Man picked up and rolled 50 feet.
8. May 3	3:35 p.m.	Lawrence	NE	3	150	0	0	4	(a)	Damaged 2 farmsteads 7 miles southeast of Sumner.
*9. May 3	5:30 p.m.	Edgar	NE	6	(a)	0	0	1	1	Funnel aloft and on ground in southeastern portion of county, moved to Shirkville, Ind.
10. May 31	11:20-11:30 p.m.	Calhoun	ESE	10	35	0	0	(d)	1	Moved across southern tip of county. Light damage near Golden Eagle Ferry.
11. May 31	11:50 p.m.	St. Clair	ENE	1/200	50-75	0	0	3	1	Struck south side of Belleville.
12. June 1	12:03 a.m.	St. Clair	ENE	1/700	100	0	0	3	1	Struck southwest side of Swansea.
13. June 1	12:30 a.m.	Madison	NE	1/150	50	0	0	3	1	Destroyed small house at State Park Place near Collinsville.
14. June 8	6:30 p.m.	Grundy	SE	1	(b)	0	0	3	(a)	Damage to farmstead 1/2 mile north of Kinsman.
15. June 8	7 p.m.	Ford	SE	1	(b)	0	0	4	(a)	Damaged 3 farmsteads near Melvin.

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TORNADO DATA#

YEAR 1958

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						Killed	Injured	Property (exclusive of crops)	Crops	
ILLINOIS (Cont'd)										
16. June 8	7 p.m.	Livingston	SE	(c)	(b)	0	0	(d)	1	Struck 1 farmstead 1/4 mile south of Cullom.
17. June 13	4:30 p.m.	Edgar	SE	1	(b)	0	0	4	(a)	Struck 1 farmstead at Brocton.
18. June 23	2:15-2:30 p.m.	Champaign	SW then SE	1/400	30-50	0	0	1	(d)	In cornfield 6 miles west-northwest of Rantoul.
19. July 10	5 p.m.	Vermilion	SE	2	50-100	0	0	1	3	Struck 3 farms near Oakwood.
20. July 11	12:45-1:30 p.m.	Wayne, Edwards, and Wabash	ESE	25	50	0	1	4	(a)	Intermittent path from 4 miles northwest of Enterprise through northern Edwards County and into Wabash County. 1 person injured near West Salem. Damage to about 10 homes or farmsteads.
21. July 11	7:55 p.m.	Coles	ESE	10	30	0	2	4	(a)	Damage to about 6 farmsteads from east of Mattoon to south of Charleston.
22. Aug. 6	5:10 p.m.	Kane	SE	2	70	0	0	5	1	Extensive roof damage to newly completed factory at Montgomery.
23. Aug. 15	2-3 a.m.	Lee, De Kalb, Kendall, and Will	ESE	75	75-200	0	0	5	(a)	Intermittent path from south of Dixon to Compton, Sandwich, north-east of Plattville and south of Joliet. Heaviest damage at Sandwich. Barns destroyed at Compton, south of Waterman, and northeast of Plattville.
24. Aug. 15	5 a.m.	Vermilion	SSW	17	30	0	0	3	(d)	Struck house in Tilton and farmstead east of Sidell. Intermittent path.
25. Aug. 30	7:50 p.m.	Winnebago	(a)	(c)	(b)	0	0	4	1	Two houses damaged at Loves Park.
26. Aug. 30	10:55 p.m.	Cook	ENE	1	70	0	0	4	1	Tree and roof damage in Chicago.
27. Oct. 8-9	11:30 p.m. - 1 a.m.	Stephenson, Winnebago, Boone, McHenry, and Lake	E	80	(a)	1	(a)	6	(a)	Intermittent path from Rock City to Waukegan. Motorist killed by falling tree at Chemung. Heaviest damage in northwest portion of Waukegan. Two house trailers wrecked near Rock City and Durand.
INDIANA										
1. Apr. 5	6:45 p.m.	Porter	NE	1/80	80	0	0	3	1	Occurred 6 miles northeast of Valparaiso.
2. Apr. 5	8:30 p.m.	Henry	NE	1/50	50	0	0	4	1	Occurred 1/2 mile east and 1/2 half mile south of Spiceland.
3. Apr. 5	9 p.m.	Grant	E	1/30	5	0	0	3	1	Occurred 8 miles east of Marion.
4. Apr. 20	4 p.m.	Washington	N	1/2	100	0	0	3	1	At Delaneys Creek about 10 miles north of Salem.
*5. May 3	7 p.m.	Vigo	NE	2	200	0	0	4	1	Several dwellings damaged near Shirkieville. Tornado moved from Edgar County, Ill.
6. May 31	7:20 p.m.	La Porte	(a)	(a)	(a)	0	0	5	1	Large warehouse deroofed in Michigan City.
7. May 31	8:20 p.m.	La Porte	E	1	(a)	0	2	4	1	Home and outdoor movie screen destroyed near Rolling Prairie.
8. June 8	5:30 a.m.	Porter	(a)	(a)	(a)	0	0	4	1	Three trailers and trees blown over 3-1/2 miles east of Ogden Dunes.
9. June 8	5:30 p.m.	Jasper	(a)	(a)	(a)	0	0	4	1	Several buildings damaged at Rensselaer.
10. June 8	9 p.m.	Jasper	(a)	(a)	(a)	0	0	4	1	Buildings destroyed at Rensselaer. Two tornadoes in 1 evening.
11. June 8	11:24 p.m.	Henry	(a)	(a)	(a)	0	1	5	1	Store damaged and truck turned over at New Castle.
12. June 8	P.m.	Tipton	(a)	(a)	(a)	0	0	3	1	Large mobile home overturned near Groomville.
13. June 9	9:25 p.m.	Madison	(a)	(a)	(a)	0	0	5	1	Buildings damaged in Hamilton.

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TORNADO DATA#

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
INDIANA (Cont'd)										
14. June 13	12:30-12:45 a.m.	Cass and White	E	9	50	0	0	4	1	Buildings damaged east of Monticello and at Idaville and Burnettsville in skipping path.
15. June 13	1 a.m.	Cass	SE	(a)	(a)	0	0	4	1	Two houses damaged at Logansport.
16. June 13	2:30 a.m.	Madison	(a)	(a)	(a)	0	1	4	1	Damage occurred at Markleville.
17. June 13	(a)	Monroe	(a)	(a)	(a)	0	0	4	1	Damage occurred at Stinesville.
18. June 13	(a)	Monroe	(a)	(a)	(a)	0	0	4	1	Damage occurred at Ellettsville.
19. June 13	(a)	Montgomery	E	(a)	(a)	0	0	5	1	Houses and factory damaged at Smartsburg.
20. June 24	5:26-8:14 p.m.	Elkhart, La-Grange, Steuben, and St. Joseph	E	(a)	(a)	0	0	4	1	Parent cloud with several funnel clouds caused scattered damage. First damage near Granger, touched ground again 2-1/2 miles north of Elkhart, and caused damage at Stone Lake.
21. July 28	12:30 a.m.	Martin	N	4/10	(a)	0	0	3	1	Damage occurred in Shoals.
22. July 29	3 p.m.	Starke	(a)	(a)	(a)	0	0	4	1	Two barns destroyed near Hamlet.
23. July 29	Afternoon	Starke	(a)	3	(a)	0	0	4	1	Buildings on 3 farms damaged north of Knox.
24. July 31	3:32 p.m.	Shelby	(a)	(a)	(a)	0	0	4	1	House destroyed at Shelbyville.
25. Sept. 18	8:21 a.m.	St. Joseph	(a)	(a)	(a)	0	0	1	1	Two waterspouts observed 5 miles north of Mermaid Intersection, near South Bend.
26. Sept. 18	8:21 a.m.	St. Joseph	(a)	(a)	(a)	0	0	1	1	
27. Nov. 16	3:45 p.m.	Posey	NE	(a)	(a)	0	0	3	1	Funnel cloud touched ground 10 miles west of Evansville, causing minor damage.
IOWA										
1. Mar. 28	10:30 a.m.	Lee	NE	(a)	(a)	0	0	1	1	Fishermen reported small tornado or dust devil carried brush, debris, and water overhead.
2. Mar. 30	Afternoon	Polk	NE	(a)	(a)	0	0	(d)	1	Small tornado or dust devil carried debris and 1 small toolshed aloft.
3. Apr. 1	2:50 p.m.	Cherokee	NE	8	200	0	0	4	1	Destroyed farm buildings and cars and damaged buildings in towns of Mary Hill and Meriden.
4. Apr. 5	10 a.m.	Woodbury, Plymouth, and Sioux	NNW	55	100	0	1	4	1	Moved from near Oto to beyond Hospers, over open fields most of time, but buildings damaged near Oto and Remsen.
5. Apr. 5	2 p.m.	Palo Alto	N	(a)	(a)	0	0	1	1	Possible tornado, 1 report of funnel seen over harvested cornfield 6 miles south of Ayrshire.
6. May 18	1:30 p.m.	Cherokee	(a)	(a)	(a)	0	0	(d)	1	Minor damage to farmyard at Cleg-horn by dust devil or small tornado.
7. June 8	5 p.m.	Wapello and Van Buren	NE	1/4	50	0	0	3	1	Probable tornado destroyed farm buildings on 2 farms.
8. June 10	1:30 p.m.	Dubuque	NE	1	50	0	0	3	(d)	Destroyed farm buildings.
9. June 22	3 p.m.	Greene, Dallas, and Decatur	SSE	80	400	0	0	3	1	Probable tornado; path intermittent; farm buildings damaged.
10. June 29	9 a.m.	Osceola	(a)	1/2	50	0	0	3	1	Unroofed corncrib.
11. July 14	5:55 p.m.	Adams and Taylor	S	15	100	0	1	5	4	Moved from near Prescott to near Lenox. Several farmsteads damaged and 2 houses destroyed. Man injured when lifted into air and dropped.
12. July 14	7:50 p.m.	Tama	S	(a)	(a)	0	0	4	3	Possible tornado damaged several houses, farm buildings, and crops.
13. July 29	4 a.m.	Dubuque	(a)	(a)	(a)	0	0	4	1	Possible tornado destroyed farm buildings.

See reference notes at end of table. # Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
IOWA (Cont'd)										
14. Aug. 5	5 p.m.	Buena Vista and Calhoun	NE	20	60	0	0	3	3	Possible tornado damaged farm buildings and crops.
KANSAS										
1. Apr. 4	5:30 p.m.	Jackson	NE	1	(b)	0	0	(d)	1	Shed and fence damaged as tornado dipped to ground momentarily northwest of Soldier.
2. Apr. 19	5-5:30 p.m.	Comanche	E	3	(a)	0	0	(d)	1	Machine shed and garage damaged as tornado dipped to ground momentarily 5 miles north and 2 miles west of Protection.
3. Apr. 27	5:15-5:30 p.m.	Rawlins	E	5	200	0	0	4	1	Tornado traveled from 4 miles north and 1-1/2 miles east of McDonald to about 9 miles east, damaging a number of farm buildings, machinery, trees, and fences.
4. May 31	6:45-7 p.m.	Franklin	NE	1	60	0	0	4	1	Two tornadoes, 1 began 2-1/2 miles southwest of Le Loup, damaging buildings on 2 farms. Second tornado moved over path from 8 miles east and 2 miles north of Ottawa to 4 miles northeastward, damaging buildings on 4 farmsteads and downed utility lines.
5. May 31	6:45-7 p.m.	Franklin	NE	4	(a)					
6. May 31	8:25 p.m.	Labette	NE	1/4	100	0	0	4	1	Destroyed 4-room house, garage, and brooder house 5-1/2 miles southeast of Parsons.
7. June 6	4:20-4:30 p.m.	Kiowa	NE	6	(a)	0	0	3	1	Damage path extended from Haviland to 6 miles northeast.
8. June 7	7 a.m.	Sedgwick	NE	(c)	(b)	0	4	4	1	Damage in extreme southeastern portion of Wichita. Barns damaged and several trailers overturned.
9. June 10	5:44-5:50 p.m.	Butler	ESE	8	300	15	50	6	1	First touched ground 7 miles west and 2 miles north of El Dorado. Rate of travel about 30 m.p.h.
10. June 11	11:08-11:25 p.m.	Sedgwick	NE	(a)	(a)	0	6	(e)	1	Approximately 50 homes damaged in northern Wichita.
11. June 11	11:44 p.m.	Butler	(a)	(a)	(a)	0	0	(e)	1	Several house trailers and barn damaged at Andover.
12. June 12	12:04 a.m.	Lyon	(a)	(a)	(a)	0	0	(e)	1	Farm buildings damaged 6 miles south of Olpe.
13. June 12	2:07 a.m.	Lyon	(a)	(a)	(a)	0	0	(e)	1	Reported on ground 10 to 15 miles east of Emporia.
14. June 12	3 p.m.	Clark	(a)	(a)	(a)	0	0	(d)	1	Struck ground momentarily 11 miles south of Minneola.
15. June 12	3:50 p.m.	Ford	(a)	(a)	(a)	0	0	(d)	1	Touched ground briefly a few miles southeast of Dodge City.
16. June 12	4 p.m.	Stafford	NE	(c)	(a)	0	0	(e)	1	Struck several farms 7 miles east and 2 miles north of Hudson.
17. June 12	4:08 p.m.	Pottawatomie	NE	(c)	(b)	0	0	(d)	1	Touched ground briefly 4 miles northeast of Manhattan.
18. June 12	4:10 p.m.	Rice	(a)	1-1/2	50	0	0	(e)	1	Some damage near Silica.
19. June 12	4:30 p.m.	Wabaunsee and Shawnee	ENE	10	300	0	0	4	1	Intermittent damage path from 6 miles northwest of Dover to about 10 miles west of Topeka.
20. June 12	5:45 p.m.	Doniphan	ENE	15	200	0	0	(e)	1	Intermittent path from 6 miles west of Denton to past Bendena.
21. June 12	6:45 p.m.	Gray	(a)	(c)	(a)	0	0	(d)	1	Damage to roof of house 6 miles north of Cimarron.
22. June 12	(a)	Edwards	(a)	(a)	(a)	0	3	4	1	Farm buildings damaged 1-1/2 miles north of Belpre.
23. June 14	8-8:20 p.m.	Miami	E	8	30	0	0	(d)	1	Damage 12 miles northwest of Paola.

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TORNADO DATA#

YEAR 1958

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						Killed	Injured	Property (exclusive of crops)	Crops	
KANSAS (Cont'd)										
24. June 14	9 p.m.	Greenwood and Woodson	SE	20	(a)	0	0	4	1	Damage from 6 miles east of Hamilton to north of Yates Center.
25. June 15	Early a.m.	Morris	(a)	(a)	(a)	0	0	(e)	1	Drive-in theatre and farm buildings damaged east of Council Grove.
26. June 20	12:30-12:50 p.m.	Meade	SE	10	30	0	2	4	1	A number of farm buildings demolished and house trailer overturned, with injuries to 2 persons northeast of Plains.
27. June 22	1:40-1:55 p.m.	Wyandotte	E	✓55	25	0	0	(d)	1	Tornado dipped at Kansas City.
28. June 24	9:30 p.m.	Lyon	E	2	50	0	0	(e)	1	Farm buildings damaged 5 to 6 miles northwest of Emporia.
29. July 3	3 p.m.	Coffey	NE	1	33	0	0	(e)	1	Farm buildings damaged or destroyed on 1 farm southeast of Burlington.
30. July 4	5:15 p.m.	Decatur	SE and NE	(a)	(a)	0	0	(d)	1	Touched ground briefly 4 miles southwest of Dresden.
31. July 11	12:45 a.m.	Shawnee	(a)	(c)	(b)	0	0	(e)	1	Damage on farm 5 miles northwest of Topeka.
32. July 11	1:03 a.m.	Shawnee	SE	(c)	(b)	0	0	(e)	1	Struck 2 farms 8 miles southwest of Topeka.
33. July 11	1:20 a.m.	Jefferson	E	(c)	(b)	0	0	(d)	1	Sighted 2 miles east of Valley Falls.
34. July 11	2 a.m.	Johnson	E	1-1/4	(b)	0	0	(d)	1	Damage mostly at tree-top height at Olathe.
35. July 11	2:35 a.m.	Woodson	(a)	(c)	(b)	0	0	(e)	1	Occurred in Yates Center and vicinity.
36. July 13	11 p.m.	Rush	NE	2-1/2	25	0	0	3	1	Barn and shed damaged 4 miles east of La Crosse.
37. July 20	4:20 p.m.	Wallace	SE	4	700	0	4	4	1	Occurred west of Weskan. Buildings, farm machinery, and automobile damaged.
38. July 22	6:20-6:25 p.m.	Meade	(a)	(a)	(a)	0	0	(d)	1	Touched ground 5 miles west of Fowler.
39. July 26	8-8:05 p.m.	Edwards	E	1	100	0	0	(d)	1	Took roof off building, carrying it 1/8 mile, 7 miles north and 2 miles west of Kinsley.
40. Nov. 17	5 a.m.	Crawford	(a)	(a)	(a)	0	0	(e)	1	Several buildings demolished and trees and telephone poles snapped off at Opolis.
41. Nov. 17	9:30 a.m.	Cowley	NE	10	220	0	0	4	1	Homes, barns, telephone lines, and trees damaged in path from southwest of Maple City to north and east of town.
42. Nov. 17	9:45-10 a.m.	Elk	NE	10	880	0	0	4	1	Roofs, barns, sheds, and trees damaged from 5 miles southwest to 5 miles northeast of Grenola.
43. Nov. 17	9:45-10 a.m.	Elk	(a)	(a)	(a)	0	0	(d)	1	Dipped briefly 4 miles northwest of Grenola.
44. Nov. 17	10:20-10:23 a.m.	Leavenworth	NE	(a)	(a)	0	0	3	1	Buildings on 3 farms 10 miles southwest of Leavenworth damaged.
45. Nov. 17	10:50 a.m.	Coffey	NNE	(a)	(a)	0	0	(e)	1	Farm buildings struck near Gridley.
46. Nov. 17	10:50 a.m.	Osage	NNE	(a)	(a)	0	0	(e)	1	Buildings damaged on 3 farms near Melvern.
47. Nov. 17	10:50 a.m.	Franklin	NNE	(a)	(a)	0	0	(e)	1	Farm buildings damaged east of Pomona.
48. Nov. 17	10:50 a.m.	Franklin	NNE	(a)	(a)	0	0	(d)	1	Dipped briefly 4 miles northwest of Centropolis.
49. Nov. 17	10:50 a.m.	Leavenworth	NNE	(a)	(a)	0	0	(d)	1	Small tornado sighted southwest of Tonganoxie.
KENTUCKY										
1. Apr. 20	2:20 p.m.	Logan	N	(a)	(a)	0	1	4	1	Small tornado southwest of Bowling Green touched ground 1 time. House and barn blown over.

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TORNADO DATA#

YEAR 1958

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KENTUCKY (Cont'd)										
2. Apr. 20	4:30 p.m.	Madison	(a)	(a)	(a)	0	0	4	1	Small tornado southeast of Richmond. Barn destroyed, a few houses damaged, and many trees uprooted.
3. Apr. 22	9 a.m.	Warren	(a)	(a)	(a)	0	0	3	1	Residence about 3 miles from Bowling Green damaged.
4. Apr. 24	4:20 a.m.	Daviess	E	(a)	(a)	0	0	(a)	1	Pilot reported funnel cloud reaching ground 10 miles south of Owensboro.
5. Apr. 24	6:45 a.m.	Caldwell	(a)	(a)	(a)	0	0	4	1	Damage reported in an area of about 1-1/2 miles. Barns and houses damaged, trees uprooted, and powerlines torn down.
6. May 2	P.m.	McCracken	NNE	(a)	(a)	0	0	3	1	Hit about 1-1/2 miles west of Paducah.
7. June 12	6 p.m.	Ballard	NE	(a)	(a)	0	3	4	4	Hit in town of La Center. Several buildings damaged or demolished. Injuries occurred when trailer home turned over.
*8. July 11	6-6:30 p.m.	Campbell	SE	(a)	(a)	0	8	5	1	Moved into northern Kentucky from Ohio and dissipated. Trees uprooted, automobiles overturned, and houses damaged. Boats on Ohio River damaged.
LOUISIANA										
1. Feb. 26	5:15 p.m.	Caddo	ENE	660	50	0	2	3	1	Small, short-lived tornado at Hosston unroofed 2 houses and overturned trailer.
2. Feb. 26	6 p.m.	East Carroll	NE	(a)	(a)	0	0	4	1	Several homes damaged 5 miles north of Lake Providence. Moved to Mayersville, Miss.
*3. Apr. 24	7:30 p.m.	West Carroll and East Carroll	ENE	15	30	0	0	5	1	Destroyed hangar and 7 planes and caused damage at Lake Providence. Moved into Issaquena County, Mississippi.
4. May 23	2:40 p.m.	St. Charles	(a)	(c)	(b)	0	0	1	1	Waterspout near Norco.
5. May 24	5:30 a.m.	St. Bernard	(a)	(a)	(b)	0	0	1	1	Waterspout 30 miles southeast of New Orleans.
6. May 24	Afternoon	Cameron	(a)	(c)	(b)	0	0	1	1	In uninhabited area 35 miles southeast of Lake Charles.
7. May 24	Afternoon	Cameron	NE	(c)	(b)	0	0	1	1	Near Holmwood mostly in uninhabited area.
8. May 24	5:26 p.m.	Cameron	(a)	(c)	(b)	0	0	1	1	In uninhabited area 30 miles east-southeast of Lake Charles.
9. June 4	12:30 p.m.	Jefferson	(a)	(a)	(b)	0	0	1	1	Waterspout on Lake Pontchartrain.
10. July 3	3:35 p.m.	Jefferson Davis	NE	(c)	(b)	0	0	1	(d)	Moved over open country 10 miles south of Jennings.
11. July 13	1:38 p.m.	Orleans	(a)	(c)	(b)	0	0	1	1	Waterspout over Lake Pontchartrain.
12. Aug. 8	6:44 p.m.	Jefferson	(a)	(c)	(b)	0	0	1	1	Waterspout over Lake Salvador.
13. Nov. 14	2:10 p.m.	East Baton Rouge	NE	2	20	0	0	4	1	In Baton Rouge, several houses unroofed, trees stripped, and garages damaged.
14. Nov. 14	5:30 p.m.	Webster	NE	4	30	0	1	4	1	Ten miles south of Cotton Valley, 4 houses demolished, 5 buildings unroofed, and trees downed.
MAINE										
1. July 2	4 p.m.	Washington	(a)	(a)	(a)	0	0	3	3	Tornado at Jonesport with path into Mason's Bay. Huge apple trees jerked out with roots and blown 60 feet away. Section of weir damaged.
2. July 2	5 p.m.	Penobscot	(a)	(a)	(a)	0	0	4	1	Path through parts of Orono, Old Town, Bradley, and Stillwater. Numer-

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MAINE (Cont'd)										
3. July 2	5-6 p.m.	Franklin	(a)	(a)	(a)	0	0	4	1	ous trees felled and 2 buildings unroofed.
4. July 11	2:30 p.m.	York	SE	1	100	0	0	3	1	Tornado did extensive damage in Livermore Falls, Wilton, and Farmington areas. Trees and utility lines downed.
5. July 19	6 p.m.	Kennebec	E	(c)	50	0	0	3	1	Funnel at Buxton moved slowly and erratically. House destroyed, lumber pile dispersed, and trees felled.
6. Aug. 8	3:30 p.m.	Lincoln	NE	2	(b)	0	0	2	1	Very small funnel seen at Clinton. Set of farm buildings damaged.
7. Aug. 15	11:20 a.m.	Aroostook	E	20	300-400	0	0	5	1	Waterspout crossed Big Bay of Damariscotta Lake, raising water about 4 feet and spray about 80 feet. Dissipated soon after reaching shore.
MARYLAND										
1. May 4	7 a.m.	Worcester	SE	1-1/2	(a)	0	0	4	1	Tornado in remote forested area starting 20 miles southwest of Allagash and ending about 4 miles west of Fish Lake. Verified by aerial survey. Hardwoods broken and fir and spruce trees uprooted in swirl fashion.
2. June 11	1:30 p.m.	Fredrick & Carroll	(a)	(a)	(a)	0	0		1	Occurred northwest of Snow Hill, near Indiantown. Roofs blown from several barns, windmills wrecked, trees twisted off mostly about 15 feet above ground, telephone poles downed, and 2 houses had sides bulged out on northeast sides.
3. Sept. 7	2:30-3 p.m.	Talbot & Dorchester	(a)	(a)	(a)	0	0	1	1	Funnel cloud observed over mountains northwest of Emmitsburg.
4. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					At least a dozen waterspouts in Choptank River from mouth of Tred Avon River westward for about 2 miles down Choptank. North American Star Boat Championship race being sailed at that time and only 3 boats able to finish race out of 40 entries. Sailors described waterspouts as being from 10 to 100 feet in diameter and from water to lower deck of clouds.
5. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
6. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
7. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
8. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
9. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
10. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
11. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
12. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
13. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
14. Sept. 7	Ditto	Ditto	(a)	(a)	(a)					
MASSACHUSETTS										
1. June 26	3:50 p.m.	Hampden	E	(c)	(b)	0	0	2	1	Small tornado at East Longmeadow snapped and uprooted trees and ripped awnings from house.
2. July 11	3:30 p.m.	Franklin	E	1	100	0	0	3	1	Two buildings deroofed and trees felled at Millers Falls.
3. July 11	4 p.m.	Worcester	E	1/660	70-200	0	0	2	1	Longer path visible at tree-top level. Tornado apparently developed at Barre from 1 of a group of 5 funnels aloft.
4. July 11	4 p.m.	Worcester	E	1/100	50	0	0	3	1	Path 1/2 mile north of center of Barre.
5. July 11	5 p.m.	Middlesex	ESE	1-1/2	25	0	0	5	1	Tornado path from Bedford to Lexington. Heavy damage to airplanes at Hanscom Airport, Bedford. Farm buildings demolished. St. Elmo's Fire and unusual static electric phenomena seen at airport.
6. July 16	5 p.m.	Worcester	E	(c)	(b)	0	1	3	1	Tornado path from Bedford to Lexington. Heavy damage to airplanes at Hanscom Airport, Bedford. Farm buildings demolished. St. Elmo's Fire and unusual static electric phenomena seen at airport.
7. July 29	3-3:10 p.m.	Worcester	E	(c)	(b)	0	0	3	1	Very small tornado at Hopedale. Damage to 1 home, 1 garage, and several trees. One person injured by flying glass.
										Funnel from Worcester to Shrewsbury mostly at tree-top level which minimized damage. Trees downed and cottage damaged by felled trees. Storm crossed Lake Quinsigamond as waterspout.

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MASSACHUSETTS (Cont'd)										
8. Aug. 13	2:30 p.m.	Franklin	E	10	50-500	0	0	3	1	Possible tornado with single report of observed funnel. This was severe storm in parts of East Charlemont, Buckland, and Shelburne Falls. Trees downed, utilities disrupted, and automobiles crushed.
9. Aug. 14	6:30 p.m.	Hampshire	NNE	1	(b)	0	0	5	1	Hangar at Northampton Airport destroyed. Truck damaged by falling tree.
10. Aug. 25	5 a.m.	Middlesex	NE	1	30	0	0	3	1	Tornado at Reading broke and uprooted trees and damaged buildings. Destruction included commercial building roof built of 3-1/2 inch planking.
11. Sept. 7	4:15 p.m.	Bristol and Plymouth	ENE	4	65	1	0	3	1	Twister with shrill whistle and flying debris. Damage limited to trees, powerlines, and a chimney in erratic 4-mile path through Taunton and Raynham. Another development in same line in vicinity of Duxbury Beach. Sailboat lost offshore with 1 death.
12. Sept. 8	2:35 p.m.	Barnstable	ENE	2	75	0	0	1	1	Waterspout formed on Buzzards Bay then crossed Mashpee Village and Phinney's Harbor to Monument Beach. Overturned some boats and buffeted an automobile near beach.
MICHIGAN										
1. May 31	7:45 p.m.	Berrien	ENE	8	(b)	0	0	3	1	Tornado aloft most of time, damage limited to summer cottage near Paw Paw Lake.
2. June 24	8 p.m.	Hillsdale	E	4	30	0	0	4	1	Several farm buildings smashed near Camden.
3. June 29	4 p.m.	Alger	E	1/2	10	0	0	3	1	Damage to summer cottages, boats, and trees at Twin Lakes.
4. July 16	Evening	Antrim	NE	1/200	75	0	0	(d)	1	In wooded and uninhabited area; no witnesses; all trees down in path of storm.
5. Aug. 3	6:30 p.m.	Lenawee	(a)	(a)	17	0	0	1	1	Small funnel snapped tops off 8 trees, narrowly missed farmhouse near Tecumseh.
6. Aug. 9	6 p.m.	Iron	(a)	(c)	30	0	0	1	1	Tornado cut short path through forested area at Ottawa Lake.
7. Sept. 4	3 a.m.	Sanilac	(a)	(c)	100	0	0	(d)	1	Suspected tornado, uprooted trees in farmyard 4 miles south of Sanduskey. Residents reported "noise like a dozen jets" lasting 20 seconds.
MINNESOTA										
*1. May 24	1:45 p.m.	Washington	SE	17	50	0	2	5	1	First observed 3 miles northeast of White Bear. Demolished 5 barns and several outbuildings. At 2:06 p.m., 1 mile northeast of Lake Elmo, destroyed new home and barn, injured 2 persons. Continued through Lakeland, crossing St. Croix River into Wisconsin. Along path, powerlines and trees twisted and downed.
2. May 26	3:30 p.m.	St. Louis	ENE	8	(a)	0	0	(d)	1	Funnel observed at Duluth, touched ground only once, damaging 1 garage.
3. May 26	3:30 p.m.	St. Louis	S	(a)	(a)	0	0	(d)	1	Two reported funnels at Pequaway Lake, 30 miles northeast of Duluth. Two cabins damaged and trees uprooted. Water sucked out of lake.
4. May 26	3:30 p.m.	St. Louis	S	(a)	(a)	0	0	(d)	1	
5. May 26	6 p.m.	Faribault	SE	(c)	(b)	0	0	(d)	1	Funnel observed at Blue Earth. Touched ground momentarily and destroyed house trailer and garage.
6. June 4	4:20 p.m.	Stearns	ESE	18	400	0	2	5	1	Three separate funnels struck about 20 miles west of St. Cloud. One travelled about 18 miles from

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TORNADO DATA*

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MINNESOTA (Cont'd)										
7. June 4	4:20 p.m.	Stearns	ESE							Albany to near Sauk Rapids, doing damage to 37 farms. One near St. Martin damaged 3 barns and injured 2, picking up 1 person and tumbling him 100 feet. Third travelled from Lake Koronis to Pearl Lake, doing minor damage to lake cottages.
8. June 4	4:20 p.m.	Stearns	ESE							
9. June 19	4 p.m.	Redwood	SE	(a)	(a)	0	0	1	1	Funnel cloud touched ground briefly near Redwood Falls.
10. June 23	4:50 p.m.	Martin	SE	6	100	0	0	3	1	Garage destroyed and other small buildings damaged 6 miles southwest of Truman.
11. July 1	3:10 a.m.	St. Louis	SE	2	(a)	1	1	(a)	1	Suspected tornado twisted and uprooted large Norway pine trees (estimated 100,000 potential board feet of lumber) near McCarthy Beach State Park, 18 miles north-northwest of Hibbing. Camper killed by falling branch. Several lake cottages destroyed and many damaged.
12. Aug. 4	7:30 p.m.	Redwood	SE	(a)	(a)	1	2	(a)	(a)	Suspected tornado near Lucan. Man killed when outbuilding collapsed and crushed him. Two persons injured when portable grain elevator tipped over. Barn damaged, trees uprooted, and windows blown out.
13. Aug. 11	7:25 p.m.	Clay	ENE	3/4	100	0	5	4	(d)	New trailer home flipped over and destroyed also 60-foot long barn and other outbuildings, farm machinery twisted beyond repair, tightly closed quonset shed exploded and was demolished 6-1/2 miles south-southeast of Moorhead.
14. Sept. 5	6 p.m.	Freeborn	NE	3	100	0	0	3	(d)	Suspected tornado in Hollandale area. Three barns hit with minor damage. Stack of 500 straw bales torn apart, many intact bales found 200 yards away.
MISSISSIPPI										
1. Feb. 26	5:30-7:30 p.m.	Copiah, Hinds, Rankin, Madison, and Leake	NE	60	20-75	7	24	5	(d)	Began west of Crystal Springs, moved over sparsely settled land, across southeast edge of Jackson to Luckney where heaviest damage occurred, then through Pearl River swamps to strike Farmhaven and Pine Grove.
2. Feb. 26	5:40-7:50 p.m.	Copiah, Rankin, Scott, Leake, and Neshoba	NE	65	25-100	1	34	6	(d)	Tornado moved from just northeast of Harrisville, struck Piney Woods school where damage heavy to 2-story or higher buildings, then across sparsely settled area to Walnut Grove, passing 4 miles west of Morton and on to Laurelhill 75 percent of homes damaged in Walnut Grove.
3. Feb. 26	6-6:30 p.m.	Pearl River and Lamar	NE	25	50	0	9	5	4	Dipped to earth at Whitesand, passed to west of Poplarville and east of Lumberton. Farmhouses destroyed, much timber lost and tung trees twisted and broken.
*4. Feb. 26	6:20 p.m.	Issaquena	NE	10	(a)	0	0	3	1	Moved from Lake Providence, La., to Mayersville, Miss., 1 house unroofed.
5. Feb. 26	6:50 p.m.	Madison-Attala	NE	10	(a)	0	0	4	1	Several houses and other buildings unroofed, 1 house and 2 other buildings destroyed in Camden and Sulphur Springs communities.
6. Feb. 26	7 p.m.	Smith, Newton, Neshoba, and Noxubee	NE	70	(b)	0	0	4	1	Moved from near Raleigh to near Macon. Evidence of tornado through forest.
7. Feb. 26	7:30-8:30 p.m.	Harrison and Jackson	NE	30	30	0	1	4	1	Some houses unroofed in northern part of Biloxi, then passed over swampy land to Hurley where home destroyed and woman injured.

See reference notes at end of table. # Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
MISSISSIPPI (Contd)										
8. Feb. 26	7:45-8:30 p.m.	Perry, Greene, and Wayne	NE	28	100	5	12	5	(d)	Struck Brewer, destroyed homes and stores. Farmhouses near Chicora and Winchester struck. Path extended 1 mile northeast of Winchester.
9. Apr. 20	7:45 p.m.	Rankin	NE	3-5	25	0	0	4	1	Small tornado touched ground occasionally, but mostly at tree-top level. Some outbuildings and roofs damaged 2 miles west of Florence.
*10. Apr. 24	7:30-8:30 p.m.	Issaquena, Sharkey, and Humphreys	ENE	50	30	0	0	4	(d)	Moved from Lake Providence, La., passed over Nitta Yuma to near Belzoni.
11. Apr. 24	8:30 p.m.	Issaquena and Sharkey	ENE	15	30	0	0	4	(d)	Buildings and crops damaged between Rolling Fork and Anguilla.
12. Sept. 21	12:10 p.m.	Union	NE	5	100	0	2	4	(d)	Moved from 5 miles southwest of New Albany to western edge of town. Two homes destroyed and about 20 damaged.
13. Nov. 14	11 p.m.	Quitman	NE	2	30	0	0	4	(d)	In town of Lambert, several houses demolished, many unroofed, plate-glass windows blown out, and trees uprooted.
MISSOURI										
1. Apr. 5	2:40-3 p.m.	Perry	NE	1	(a)	0	1	(d)	1	Large plate-glass window blown out, man badly cut. Several farm buildings damaged. Lineman electrocuted later on, while repairing highlines after storm. Funnel dipped to earth briefly 1 mile north of Brewer.
2. Apr. 23	11:10 p.m.	St. Louis	NNE	1/2	150	0	0	3	1	Witnesses described roaring sounds. Roofs of houses damaged and windows sucked open on houses at Hazelwood.
3. May 3	1:15-2:40 p.m.	St. Louis	E	(a)	(a)	0	0	(d)	1	Funnel cloud observed at Eureka at 1:15 p.m., apparently touched ground just east of Chesterfield, dropped to earth briefly at 2:20 p.m., at Carrollton damaging 2 houses.
4. May 3	3:20 p.m.	St. Charles	NE	(a)	(a)	0	0	(d)	1	Funnel touched ground just south of St. Charles Airport, damaging farm buildings.
5. May 31	9 p.m.	Vernon	NE	4	(a)	0	0	5	1	Occurred in Metz and Stotesbury areas, 3 sets of farm buildings damaged in line from southwest to northeast, but no path given between farms. Two hogs killed and 2 missing, 1 house damaged, 2 barns lifted from foundations and turned. Main tornado evidence is that 1 steel granary lifted and carried off, pieces found 3 miles away.
6. May 31	11:15 p.m.	Newton	NE	10	(a)	0	0	(d)	1	Funnel aloft had been sighted over Neosho before reaching ground at Newtonia.
7. June 10	4:55 p.m.	Howard	NE	(a)	(a)	0	0	1	1	Funnel observed to touch ground briefly, by Weather Bureau employee, in Glasgow-Fayette area.
8. June 10	5 p.m.	Saline	NE	(a)	(a)	0	0	(d)	1	Funnel dipped to earth briefly at Saline City, damaging some farm buildings. Had been observed as funnel aloft over Marshall and near Slater.
9. June 10	8:10-8:30 p.m.	St. Charles	(a)	(a)	(a)	0	0	5	1	Church badly damaged and 9 other buildings damaged in main part of O'Fallon.
10. June 13	5:50 p.m.	Lafayette	SE	4	440	0	0	(e)	1	Several funnels sighted, many of which remained aloft. Funnel sighted west of Concordia by Highway Patrol, moved through town. Most of roof of large church blown off. House blown off foundation. Much minor damage to buildings. Hail 2/3 inch in diameter.

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TORNADO DATA#

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						Killed	Injured	Property (exclusive of crops)	Crops	
MISSOURI (Cont'd)										
11. June 13	7 p.m.	St. Charles	(a)	(a)	(a)	0	0	1	1	Funnel touched ground briefly 5 miles south of Wentzville.
12. June 15	4:30 p.m.	Mercer	(a)	(a)	(a)	0	0	(e)	(d)	Horse lifted into air and deposited unhurt. Several farm buildings demolished 5 miles west of Lineville.
13. June 24	9:30-10:30 p.m.	Lafayette	NE	4	440	0	0	(e)	(d)	Hit Wellington at 9:35 p.m., went on into Mayview area at about 10:30 p.m. Many farm buildings destroyed. Lexington had very heavy rain, 150 inches in 30 minutes.
14. July 7	12:30 a.m.	Davies	(a)	(a)	(a)	0	0	(d)	(d)	Several farm buildings damaged at Jamesport.
15. July 13	8:45-9:15 p.m.	Vernon	(a)	(a)	(a)	0	0	(e)	1	First hit farm 5 miles west of Nevada. Moved to farm 1/4 mile east, lifted just west of Nevada, dipped briefly just east of Nevada.
16. July 15	7:30 a.m.	Ray	(a)	(a)	(a)	0	0	(e)	1	At Richmond, buildings on several farms heavily damaged. Heavy wind damage to trees and crops. Many power- and phone lines downed. Heavy rain accompanied storm.
17. July 27	2:07 a.m.	Atchison	(a)	(a)	(a)	0	0	(d)	1	Demolished several outbuildings at Rockport.
18. July 31	Early morning	Livingston	(a)	(a)	(a)	0	0	(d)	1	Power- and phone lines in county downed. Outbuildings, house, and trees damaged.
19. Sept. 16	12:40 p.m.	Texas	NE	1/4	100	0	0	3	1	Farm home and several buildings 3-1/2 miles southeast of Cabool badly damaged. Heavy rains and flooding accompanied storm.
20. Sept. 16	2:15 p.m.	Jasper	(a)	1/2	200	0	0	(d)	1	Touched ground near Joplin. Several farm buildings badly damaged.
21. Sept. 16	3:30 p.m.	Cedar	(a)	3	50	0	0	4	3	Several farm buildings damaged at El Dorado Springs.
22. Sept. 16	4:50 p.m.	St. Louis	NW	3/10	20	0	0	5	1	Several homes badly damaged. Heavy local flooding in southern part of county following heavy rains.
23. Oct. 8	7:05-7:40 p.m.	Nodaway, Worth, and Harrison	E	26	300-700	2	7	5	(d)	Tornado began near Pickering, continued eastward to near Grant City, and then on to near Eagleville. Several sets of farm buildings destroyed. One woman killed when her farm home demolished. Pickup truck with several persons aboard hurled into ditch near Grant City. Heavy rains dropped from 2.50 to 6.00 inches and hail size of golf balls along storm path. Many phone and powerlines downed.
24. Nov. 16	6 p.m.	Nodaway	N	2	100	0	0	(d)	1	Tornado damaged buildings on farms 10 miles north of Maryville.
25. Nov. 17	11:30 a.m.-12:30 p.m.	Barton and Vernon	NE	30	200-400	0	1	5	1	Tornado moved toward Moundville, Nevada, just west of Walker, and west of Schell City. Town of Moundville hardest hit, with 60 or 70 homes damaged. Storm hit west edge of Nevada, and several farm buildings along path.
26. Nov. 17	1:30-2 p.m.	Putnam	(a)	3	(a)	0	0	(e)	1	First hit 1 mile west of Unionville then moved to north of Unionville. Several farm buildings destroyed.
27. Nov. 17	1:30-2 p.m.	Webster and Dallas	NE	15	125	0	0	4	1	Path began 3 miles southwest of Eckland, then to near Long Lane. Buildings on several farms damaged.
28. Nov. 17	1:45-2 p.m.	Grundy and Sullivan	NE	8	50	0	0	5	1	First hit 1 mile north of Laredo, moved to 4 miles northwest of Galt. Buildings on several farms demolished.

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MISSOURI (Cont'd)										
29. Nov. 17	2 p.m.	Harrison	NNE	6	100	0	0	5	1	Path from Blue Ridge to 7 miles east of Bethany. Buildings on several farms badly damaged.
MONTANA										
1. June 4	4:25 p.m.	Cascade	E	(a)	(a)	0	0	1	1	Funnel cloud 10 to 20 miles north-east of Great Falls apparently touched ground.
2. June 18	1:30 p.m.	Valley	(a)	(a)	(a)	0	0	(d)	1	Some damage to granaries in Nashua-Glasgow area.
3. July 2	5 p.m.	Yellowstone	E	(a)	(a)	0	0	1	1	Occurred in Billings area.
4. Aug. 12	4:45 p.m.	Yellowstone	SW	1/2	20	0	1	3	1	Some damage to trees in Laurel. Man injured when thrown to ground.
NEBRASKA										
1. Apr. 4	4:10 p.m.	Seward	NE	(c)	(b)	0	0	1	1	Five miles north and 2 miles west of Seward tornado touched ground in open field.
2. Apr. 4	5:30 p.m.	Otoe	NNE	7	(b)	0	0	3	1	Occurred at Nebraska City.
3. May 14	3:40 p.m.	Thayer	(a)	(c)	(b)	0	0	1	1	Five to 6 miles south of Hebron tornado touched ground in open field.
4. May 16	12:42 p.m.	Adams	(a)	(c)	(b)	0	0	1	1	Reported in open field 4 miles west of Kenesaw.
5. May 30	3 a.m.	Washington	NE	1/8	150	0	0	(d)	1	A few small farm buildings damaged 4 miles east of Fontanelle.
6. May 30	6 p.m.	Dawes	(a)	(c)	(b)	0	0	1	1	Touched ground briefly in open range 5 miles south of Crawford.
7. June 1	7 p.m.	Morrill	ESE	(c)	(b)	0	0	3	1	Frame schoolhouse destroyed.
8. June 4	7 p.m.	Seward	(a)	(c)	(b)	0	0	4	(d)	Occurred southwest of Milford.
9. June 11	3:40 p.m.	Scotts Bluff	NNE	3	(b)	0	0	3	1	A few farm buildings destroyed 5 miles east-northeast of Scottsbluff.
10. June 11	6 p.m.	Cheyenne	(a)	(c)	(b)	0	0	1	(d)	Three funnels observed touching ground briefly in open field 6 miles east of Sidney.
11. June 11	6 p.m.	Cheyenne	(a)	(c)	(b)	0	0	1	(d)	
12. June 11	6 p.m.	Cheyenne	(a)	(c)	(b)	0	0	1	(d)	
13. June 11	Evening	Hitchcock	(a)	(c)	(b)	0	0	3	1	Small tornado 10 miles north of Trenton.
14. June 15	Afternoon	Box Butte	(a)	(c)	(b)	0	0	1	(d)	Over open field near Hemingford.
15. June 15	Evening	Hitchcock	SE	(c)	(b)	0	0	3	1	Small tornado 1 mile north of Trenton.
16. June 18	2:30 p.m.	Box Butte	SE	(c)	(b)	0	0	1	(d)	Touched ground in open field.
17. June 18	5:45 p.m.	Keith	(a)	(c)	(b)	0	0	3	1	Several farm buildings demolished 10 miles north of Ogallala.
18. June 30	7 p.m.	Furnas	SE	(c)	(b)	0	1	3	1	Damage 5 miles southwest of Cambridge.
19. July 1	Evening	Cheyenne	SE	(c)	(b)	0	1	(d)	1	Funnel observed north of Potter.
20. July 1	Evening	Dawes	(a)	(c)	(b)	0	0	3	1	Occurred 9 miles north of Chadron.
21. July 1	Late evening	Cheyenne	SSE	15	(b)	0	0	5	(d)	Occurred north of Lodgepole.
22. July 2	8 p.m.	Lincoln	(a)	(c)	(b)	0	0	1	1	Two funnels touched ground briefly in open field near Wellfleet.
23. July 2	8 p.m.	Lincoln	(a)	(c)	(b)	0	0	1	1	
24. July 2	11:35 p.m.	Dawson	(a)	(c)	(b)	0	0	1	1	Two funnels touched ground briefly in open field near Cozad.
25. July 2	11:35 p.m.	Dawson	(a)	(c)	(b)	0	0	1	1	
26. July 3	2 p.m.	Gage and Johnson	ENE	35	(b)	0	1	5	(d)	From southwestern Gage County to 7 miles southwest of Tecumseh.
27. July 3	2:55 p.m.	Scotts Bluff	(a)	(c)	(b)	0	0	1	1	Reported over sparsely settled range country 15 miles north of Scottsbluff.
28. July 3	6:20 p.m.	Cheyenne	E	20	(b)	0	0	1	1	Moved from Sidney to near Lodgepole.

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NEBRASKA (Cont'd)										
29. July 8	7:40 p.m.	Madison	SE	(c)	(b)	0	0	3	1	Small tornado 9-1/2 miles south of Battle Creek.
30. July 8	9 p.m.	Butler	(a)	(c)	(b)	0	0	(d)	1	Touched ground briefly 1/2 mile north of Bellwood.
31. July 10	Early a.m.	Lancaster	ESE	(c)	(b)	0	0	3	1	Occurred in southeastern part of county.
32. July 13	1:30 a.m.	Brown	(a)	(c)	(b)	0	0	3	1	Occurred 13 miles northwest of Ainsworth.
33. July 18	4:55 p.m.	Perkins	(a)	(c)	(b)	0	1	(d)	1	Occurred north and west of Grant.
34. July 18	5:15 p.m.	Chase and Hayes	ESE	2	(b)	0	0	3	1	Occurred in Imperial, Wauneta, and Hamlet areas.
35. July 18	Late afternoon	Keith	(a)	(c)	(b)	0	0	3	(d)	Set of farm buildings damaged south and west of Ogallala.
36. July 18	Late evening	Buffalo	NE	2	(b)	0	0	5	1	
37. July 18	10:20 p.m.	Phelps	NE	(c)	(b)	0	0	4	(d)	Most damage to roof tops in Holdrege. Some ripe wheat shattered.
38. July 18	10:30 p.m.	Buffalo and Hall	(a)	(c)	(b)	0	0	5	(d)	Several farm buildings demolished, barn moved 100 feet and large bus lifted from highway west and northwest of Shelton.
39. July 18	11:30 p.m.	Hamilton	NE	(c)	(b)	0	0	3	(d)	Occurred at Murphy.
40. July 18	Night	Butler	(a)	(c)	(b)	0	0	3	(d)	Occurred in southwestern portion of county.
41. July 19	Afternoon	Banner	SE	(c)	(b)	0	0	1	1	Touched ground briefly in open field in western portion of county.
42. July 24	4 a.m.	Howard	(a)	(c)	(b)	0	0	3	(d)	Large barn flattened 4 miles east of Cushing.
43. July 30	6 p.m.	Custer	(a)	(c)	(b)	0	0	3	1	Occurred in Anselmo and vicinity.
44. Aug. 4	8:30 p.m.	Madison	(a)	(c)	(b)	0	0	3	1	Occurred in Madison and vicinity.
45. Aug. 5	5:30 p.m.	Saunders	(a)	(c)	(b)	0	0	3	1	Occurred near Colon.
46. Aug. 5	6 p.m.	Cass	SE	(c)	(b)	0	0	3	1	Occurred near Louisville.
47. Aug. 5	7 p.m.	Hamilton	(a)	(c)	(b)	0	0	3	1	Building on county fair ground destroyed near Aurora.
48. Aug. 5	11 p.m.	Otoe	(a)	(c)	(b)	0	0	5	1	Large barn blown down and windows broken in Douglas and vicinity.
49. Aug. 5	Night	York	(a)	(c)	(b)	0	0	3	1	Corncrib roof destroyed 5 miles east of York.
50. Aug. 13	4:15 p.m.	Frontier	(a)	2	(b)	0	0	4	1	Occurred in Farnam-Stockville area.
51. Aug. 13	4:30 p.m.	Hitchcock	(a)	(c)	(b)	0	0	3	1	Occurred south of Trenton.
52. Aug. 23	6:50 p.m.	Nemaha	(a)	1/2	(b)	0	0	3	1	Several farm buildings damaged 1 mile northwest of Peru.
53. Aug. 28	Evening	Custer	(a)	(c)	(b)	0	0	3	1	Barn wrecked near Callaway.
54. Sept. 15	Late afternoon	Cass	(a)	(c)	(b)	0	0	3	1	
NEVADA (None)										
NEW HAMPSHIRE (None)										
NEW JERSEY										
1. June 13	4:20 p.m.	Burlington and Mercer	E	1	100	0	1	5	1	In Bordentown Township and Groveville. Injury occurred in collapsed shed.
2. June 13	5:45 p.m.	Ocean	E	1/2	150	0	0	3	1	Five separate funnels joined and hit narrow strip of land on which

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NEW JERSEY (Cont'd)										
3. July 14	2:30 p.m.	Camden and Burlington	ENE	5-1/2	20	0	0	4	1	Mantoloking village is located. Damaged windows, roofs, and TV antennas.
NEW MEXICO										
1. May 13	6:35 p.m.	Curry	NE	(a)	(a)	0	0	1	1	Four funnels reported in north-western portion of county, dipping to ground several times over open country.
2. May 13	6:35 p.m.	Curry	NE	(a)	(a)					
3. May 13	6:35 p.m.	Curry	NE	(a)	(a)					
4. May 13	6:35 p.m.	Curry	NE	(a)	(a)					
5. May 16	2 p.m.	Sierra	E	1/4	880	0	0	1	1	Funnel touched ground 3 times southwest of Truth or Consequences, remaining down for 10 minutes at one time; over open country.
6. Sept. 9	4:40 p.m.	Guadalupe	SSE	(a)	(a)	0	0	1	1	Four miles north of Santa Rosa funnel dipped for several minutes over waste land.
7. Oct. 13	12:45 p.m.	Torrance	E	(a)	(a)	0	0	1	1	Over open country 10 miles northwest of Corona; believed to have touched ground for a few minutes.
NEW YORK										
1. June 25	7:45 p.m.	Genesee	NE	1/2	220	0	0	4	1	At Oswego, damage to buildings and trees and powerlines downed.
2. Aug. 31	5:40 p.m.	Oswego	(a)	(a)	(a)	0	0	4	1	
3. Sept. 8	5 p.m.	Suffolk	(a)	(a)	(a)	0	0	(d)	1	In Stirling Basin-Shelter Island-Greenport area whirling funnel and when over bay a definite waterspout.
4. Oct. 16	4:30 p.m.	Essex	NE	1/4	30	0	0	4	1	Struck home 4 miles southeast of Wilmington and 1 mile northwest of Upper Jay.
NORTH CAROLINA										
1. Feb. 27	Late afternoon	Robeson	(a)	(a)	(a)	0	0	3	1	Farm home, buildings, and utility lines damaged 4 miles northeast of Lumberton.
2. June 12	4 p.m.	New Hanover	(a)	1	100	0	0	4	1	Struck 2 areas adjoining Masonboro Sound, destroying or damaging 20 homes and overturning several small craft.
3. July 24	5 p.m.	Dare	E	2-1/2	100	0	1	3	1	Roofs, trees, antennas, and garages damaged near Manteo.
4. July 29	4 p.m.	Davidson	(a)	100	50	0	0	(d)	1	Small outbuilding demolished with apparent explosive force and strewn over area, and trees twisted off northwest of Lexington.
NORTH DAKOTA										
1. May 30	8 p.m.	Benson	NE	10	(a)	0	0	5	1	Six miles south of Esmond, 2 barns completely destroyed and buildings and machinery on 4 farms heavily damaged.
2. June 9	8 p.m.	McIntosh	E	(a)	(a)	0	0	4	1	Northeast of Ashley, 3 buildings and windmill damaged. Building 12x16 feet picked up and set down bottom side up 100 feet away.
3. June 21	(a)	Rolette	(a)	(a)	(a)	0	0	1	1	Funnel near Dunseith and Belcourt touched ground.
4. July 4	1:30 p.m.	Dickey	ENE	(a)	(a)	0	0	1	1	Highway Patrol reported funnel 3 miles north of Ellendale, touched ground momentarily.
5. July 13	6:30 p.m.	Sargent	(a)	(a)	(a)	0	0	4	1	Demolished barn and chickenhouse and broke trees.
6. July 17	5:30 p.m.	Steele	(a)	(a)	(a)	0	0	1	1	Funnel 6 miles northwest of Pillsbury touched ground.
7. Aug. 9	5 p.m.	Cass	E	(a)	(a)	0	0	3	1	Lifted machine shed and twisted garage on 1 farm 30 miles northwest of Fargo.

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NORTH DAKOTA (Cont'd)										
8. Aug. 11	4:06 p.m.	Grand Forks	E	(a)	(a)	0	2	3	1	Two barns and 2 silos destroyed, and combine carried 100 feet 2 miles south of Grand Forks.
9. Sept. 6	4:30 p.m.	Barnes	(a)	(a)	(a)	0	0	3	1	Car picked up northeast of Valley City. Barn destroyed on farm north of Valley City.
OHIO										
1. Apr. 28	6:45 a.m.	Franklin	E	(c)	(b)	0	0	4	1	At Columbus, roof of business building crashed down on 2 other buildings nearby, causing much damage.
2. May 22	3:15 p.m.	Pickaway	ENE	10	30	0	3	5	1	Passed over northern outskirts of Circleville and into countryside northeast of town, 7 trailers overturned, being lifted and dropped within distance of 12 feet. Damage to farm buildings to north-east of town.
3. June 9	Late afternoon	Darke	E	(c)	(b)	0	0	4	(d)	Barn housing school buses wrecked and part of roof removed from school at Versailles.
4. June 13	Afternoon	Champaign	E	(c)	(b)	0	0	5	(d)	Damage just north of Urbana and more severe damage in Westville area where barn and large-capacity corncrib demolished or severely damaged.
5. June 20	8 p.m.	Lorain	E	5	100	0	4	4	(d)	Path from Amherst to Elyria. Near Amherst, revival-meeting tent blown away and 4 women injured. In Elyria, roof lifted from business building and 600 windows broken. Water tower blown down. Much damage to signs, trees, and windows. 500-pound slab lifted from roof and dropped.
*6. July 11	6:07 p.m.	Hamilton	E	(a)	(a)	0	0	4	1	Tornado developed west of Cincinnati, moved eastward, and then across river into Kentucky.
7. July 22	1:50 p.m.	Licking	ENE	3	200	0	0	4	(d)	Moved through rural section 2 miles south of Newark, damaging several buildings, destroying a barn, and moving a 1-1/2-ton boiler about 1/2 mile.
8. July 22	3:38 p.m.	Tuscarawas	ENE	10	200	0	3	4	(d)	At Newcomerstown, 1 house completely destroyed and occupant carried 100 yards. Roofs damaged on several other buildings. Structural damage to a house and barns. Evidence of damage to trees for distance of 10 miles.
9. Aug. 14	4 p.m.	Delaware	E	(c)	(b)	0	0	3	1	Utility poles downed, house and garage roofs damaged, and trees blown down 2 miles east of Ashley.
OKLAHOMA										
1. Feb. 26	2 p.m.	Pittsburg	NE	(a)	(a)	0	0	3	1	Possible tornado damaged farmstead near Alderson.
2. Feb. 26	3:30 p.m.	Sequoyah	NE	1/8	20	0	0	3	1	Tornado dipped to ground momentarily at Moffett.
3. Apr. 2	5:55 p.m.	Comanche and Caddo	NE	16	880	0	1	4	1	Two funnels joined together over Elgin, damaged several farmsteads as tornado moved through Fletcher to Cement. Injury resulted from flying glass.
4. Apr. 21	12:30 p.m.	Grant	ENE	1	25	0	0	1	1	Struck ground northwest of Pond-creek.
5. Apr. 21	3:35 p.m.	Grady	NE	(a)	(a)	0	0	1	1	Unconfirmed, evidently struck in open country 10 miles north of Verden.
6. Apr. 21	4:05 p.m.	Grady	(a)	(c)	(b)	0	0	1	1	Touched ground momentarily just south of Chickasha.

See reference notes at end of table.

Waterspouts are included in this listing.

TORNADO DATA*

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
OKLAHOMA (Cont'd)										
7. May 2	3:20 p.m.	Le Flore	NE	1/4	100	0	0	4	1	Home demolished at Braden.
8. May 16	10:48 a.m.	Caddo	N	(a)	(a)	0	0	1	1	Funnel moving in and out of clouds touched ground momentarily near Carnegie.
9. May 17	4:02 p.m.	Seminole	(a)	(a)	(a)	0	0	1	1	Pilot reported tornado on ground 6 miles southwest of Wewoka.
10. May 24	3:10 p.m.	Oklahoma	SE	1	880	0	0	3	1	Small airport struck in Oklahoma City.
11. June 6	6:55 p.m.	Caddo	NE	1/2	30	0	0	3	1	Tornado damaged filling station at Eakly.
12. June 11	5:30 p.m.	Kiowa	NE	1	30	0	0	3	4	Struck near Cold Springs.
13. June 19	3:30 p.m.	Dewey	SE	1-1/2	30	0	0	4	(d)	Tornado at Seiling.
14. June 21	1:15 a.m.	Ellis	SE	1/2	60	0	0	5	(d)	Struck freight train of 182 cars, 17 derailed and 180 feet of track torn out at Gage.
15. June 24	2 a.m.	Garfield	SE	(c)	(b)	0	0	1	1	Touched ground momentarily in open field west of Enid.
16. June 24	10:15 p.m.	Woodward	SE	1/2	200	0	0	(a)	1	Struck farmstead at Moscow Flats.
17. June 24	11:45 p.m.	Woods	SE	1/2	30	0	0	(a)	1	Blew car into ditch at Waynoka.
18. June 25	8:30 a.m.	Le Flore	NE	1/2	200	0	1	4	1	Reported at Cameron.
19. July 1	5 p.m.	Texas	NE	5	440	0	0	3	3	Damaged farmsteads near Texhoma.
20. July 6	4:15-4:45 p.m.	Blaine	(a)	(a)	(a)	0	0	1	1	Touched ground several times in open country in Salt Creek Canyon area.
21. July 11	10 p.m.	Nowata and Craig	E	(a)	(a)	0	0	(a)	1	Funnel sighted on ground east of Lenapah. Buildings damaged north of Welch.
22. July 12	2:25 p.m.	Grant	NE	1/4	30	0	0	1	1	Touched ground briefly 1/2 mile east of Jefferson.
23. July 22	P.m.	Texas	(a)	(a)	(a)	0	0	(a)	1	Powerlines stripped 5 miles west of Baker. In Baker, warehouse, box-cars, homes, etc., damaged.
24. July 27	6:45 p.m.	Tillman	E	(c)	(b)	0	0	4	1	Portion of school destroyed at Hollister.
25. Aug. 20	3:20 p. m.	Tulsa	NE	1/50	35	0	0	3	1	Damaged house and store in Tulsa.
26. Aug. 23	2 p.m.	Woods	SE	(a)	(a)	0	0	1	1	Tornado dipped from severe thunderstorm east of Waynoka.
27. Sept. 1	5 p.m.	Kay	E	(a)	(a)	0	0	1	1	Small funnel reported on ground 4 miles west of Ponca City Airport.
28. Sept. 1	6:45 p.m.	Washington	E	1/4	20	0	0	(d)	1	Damaged trees in Bartlesville.
29. Sept. 7	4 p.m.	Texas	W	3	100	0	0	1	1	Tornado bounced through open country just west of Goodwell.
30. Sept. 23	5:05 p.m.	Harmon	(a)	(a)	(a)	0	0	1	1	Unconfirmed tornado reported 5 miles east of Hollis.
31. Nov. 16	P.m.	Craig	(a)	1/300	(b)	0	0	(d)	1	Damaged trees near Hollow.
32. Nov. 17	5:30 a.m.	Nowata	(a)	(a)	(a)	0	0	3	1	Two farmsteads damaged near Lenapah.
33. Nov. 17	6:15 a.m.	Jackson	NE	15	100	0	0	(e)	1	Damage resulted to 6 farmsteads from just north of Eldorado to 4 miles east of Duke. Church and parsonage destroyed in Prairie Hill.
34. Nov. 17	7 a.m.	Caddo	NE	(a)	(a)	0	0	(e)	1	At least 6 farmsteads heavily damaged along path from 5 miles southwest to just northwest of Apache.
35. Nov. 17	7:35 a.m.	Cotton	NE	10	50	0	4	(e)	1	Four farmsteads destroyed in path from 3 miles east of Cookietown to 3 miles east of Walters. Mother and 2 of 3 children injured in smashed house. Man injured in partially destroyed home.

See reference notes at end of table.

Waterpumps are included in this listing.

See reference notes at end of table.

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TORNADO DATA#

YEAR 1958

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						Killed	Injured	Property (exclusive of crops)	Crops	
OKLAHOMA (Cont'd)										
36. Nov. 17	8:08-8:30 a.m.	Garfield and Kay	NE	40	(a)	0	0	(e)	1	Heavy damage along path from Fairmont to Tonkawa and Blackwell.
37. Nov. 17	8:30 a.m.	Murray	NE	3	300	0	0	4	1	Extensive damage on 3 farms 2 miles southwest of Davis. Witness saw huge cylinder, rotating clockwise.
38. Nov. 17	8:30 a.m.	Garvin and Pontotoc	NE	7	500	0	0	(e)	1	Several farmsteads severely damaged from Stratford to Oil Center.
39. Nov. 17	8:47 a.m.	Carter	NE	1 200	20	0	0	4	1	Poultry farm destroyed at Dickson.
40. Nov. 17	9:23 a.m.	Seminole	NE	15	300	0	15	5	1	Heavy damage resulted to property in and near Bowlegs. Injuries mostly minor.
41. Nov. 17	11:20 a.m.	Craig	NE	3	125	0	0	4	1	Suspected tornado damaged farmsteads near Hollow.
42. Nov. 17	A.m.	Jackson	NE	1	(a)	0	0	(e)	1	Path parallel to tornado that struck Praire Hill. Farmstead damaged 2 miles southeast of Praire Hill.
OREGON (None)										
PENNSYLVANIA										
1. July 14	2 p.m.	Philadelphia	E	1	25	0	0	3	1	Occurred in Philadelphia area. Several buildings, trees, and lawn and porch furniture damaged.
RHODE ISLAND (None)										
SOUTH CAROLINA										
1. Apr. 22	1:30 p.m.	Greenwood	NNE	(a)	(a)	0	0	3	1	At Ninety-Six, funnel seen and characteristic noise heard by several persons.
2. Apr. 22	2:20 p.m.	Calhoun	ENE	50	200	0	0	3	1	Occurred 1 mile southwest of Creston. Funnel observed.
3. Apr. 22	2:30 p.m.	Clarendon	ENE	50	200	1	1	4	1	At Summerton, funnel observed. Damage characteristic.
4. Apr. 22	2:45 p.m.	Williamsburg	ENE	50	100	0	0	3	1	Occurred 3 miles west of Kingstree.
5. May 6	3-4 p.m.	Colleton	NNE	1/4	300	0	1	3	2	Occurred 5 miles west of Walterboro.
6. May 6	3:30 p.m.	Dorchester	NNE	1/4	100	0	0	2	1	Occurred near St. George.
7. Aug. 1	2:04 p.m.	Charleston	(a)	(a)	(a)	0	0	1	1	Waterspout 20 miles northeast of Charleston.
8. Aug. 26	9:15 a.m.	Charleston	(a)	(a)	(a)	0	0	1	1	Waterspout in Charleston Harbor.
SOUTH DAKOTA										
1. May 12	2:20 p.m.	McCook	N	(c)	(a)	0	0	3	1	One mile southwest of Spencer, small farm buildings destroyed and 3/4-mile stretch of powerline poles demolished. Reported as "twister", but observers did not report seeing funnel.
2. Aug. 13	5:30 p.m.	Roberts	ESE	(a)	(a)	0	0	1	1	Waterspout reported over Big Stone Lake opposite Point Comfort.
TENNESSEE										
1. Feb. 6	4:30 p.m.	Lawrence	NE	1	67	0	0	3	1	At Lawrenceburg, portion of roof blown off house; minor damage to roofs and windows of 5 other houses. Tornado funnel seen by 2 persons.
2. Feb. 26	11:10 p.m.	Hardin	(a)	(a)	(a)	0	0	5	1	In Savannah and vicinity, suspected tornado. Concrete-block school gymnasium at Savannah demolished. At Walker community, 1 home almost completely destroyed, several barns and small buildings damaged or

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Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

YEAR 1938										
State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories f		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
TENNESSEE (Cont'd)										
TEXAS										
1. Jan. 14	3:45 p.m.	Hunt	NE	1/4	25	0	0	3	1	In northwestern part of Greenville, 2 barns and 2 sheds wrecked. Power lines and TV antennas downed. Developed as white rather than dark funnel. All reports said twister swirled clockwise rather than counterclockwise.
2. Jan. 14	5:30 p.m.	Van Zandt	NE	5	300	0	0	3	1	Two miles east of Wills Point farm store considerably damaged.
3. Mar. 5	11:20 a.m.	Angelina	E	(a)	10	0	0	4	1	Knocked down 300-foot radio tower and trees uprooted 2 miles north of Lufkin.
4. Mar. 7	7:45 p.m.	Winkler	(a)	(c)	(b)	0	0	3	1	Hit oil rig and moved trailer off blocks 10 miles north of Monahans.
5. Mar. 8	12:10 a.m.	Baylor	SW	(c)	(b)	0	0	4	1	At Seymour and Bomarton, double garage blown away and windows and roofs damaged.
6. Mar. 28	2 p.m.	Terry	NE	10	150	0	0	4	1	New 4-plane empty hangar and outbuildings destroyed on a farm 4-1/2 miles northwest of Brownfield.
7. Mar. 28	2 p.m.	Lynn	NE	(c)	(b)	0	0	(d)	1	Three miles northwest of New Home several small houses overturned and shingles blown from roofs.
8. Mar. 28	2 p.m.	Lynn	NE	(c)	(b)	0	0	1	1	Came down on farmland near Lakeview.
9. Mar. 28	11:45 p.m.	Young	NE	(c)	(b)	0	0	1	1	Touched twice on farmland near Graham.
10. Apr. 2	5:40-6:10 p.m.	Wichita and Clay	ENE	16	300	1	14	6	1	Two homes completely destroyed, 331 damaged; 17 house trailers, many businesses, cars, trees, windows, TV antennas, and power poles damaged. Death caused by wind-borne object. Occurred in Wichita Falls and Deandale areas.
11. Apr. 2	6:40 p.m.	Montague	NE	15	500	0	1	1/4	C	At Stoneburg, 2 homes and 3 barns destroyed; other homes, outbuildings, and church damaged; farm equipment and machinery, cars and trucks, utility lines, and miles of fence damaged or destroyed; poultry killed.
12. Apr. 8	4 p.m.	Swisher and Randall	NE	2	100	0	0	1	1	Touched ground for a moment, lifted and dissipated in Happy area.
13. Apr. 14	2:15 a.m.	Angelina	(a)	(c)	(b)	0	0	2	1	Two houses damaged, 2 sheds blown away, and trees uprooted in Old Homer community, southeast of Lufkin.
14. Apr. 20	12:30 a.m.	Taylor	SE	(a)	(a)	0	0	3	1	Destroyed granary partially filled with 300 bushels of oats and slight damage to farm building 13 miles southeast of Abilene.
15. Apr. 20	1 a.m.	Montague	SE	2	400	0	1	3	1	At Nocona, house moved from foundation, chimney destroyed, and trees and TV antennas damaged. One person injured when blown from porch.
16. Apr. 21	4:45-5:30 p.m.	Ellis	SE	20	425	0	18	5	1	Several houses destroyed, barns and outbuildings destroyed or damaged, trees twisted, and fence posts downed. Hatchery at Buena Vista with 7,000 young turkeys destroyed. Tornado moved from 1/2 mile south of Midlothian to Maypearl to near Forreton.
17. Apr. 27	2:30-4:30 p.m.	Collin	E	22	(a)	0	0	5	6	East of McKinney, church, school, and other buildings damaged. Roofs of 360 houses and 115 cars damaged. Occurred in McKinney, Frisco, and Farmersville areas. Some livestock caught in open injured.

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TEXAS (Cont'd)										
18. Apr. 27	(a)	Lee	NE	(c)	(b)	0	0	3	1	A few trees broken and a few roofs damaged at Old Dime Box. Also reported over Leo and Dock Springs.
19. Apr. 28	4:50 p.m.	Wise	SE	1/2	300	0	0	4	1	Mostly in industrial area of Bridgeport.
20. Apr. 28	6:30 p.m.	Comanche	NE	5	880	0	0	5	C	At Downing and Comanche, 14 houses and poultry farm outbuildings demolished or badly damaged. Hundreds of pecan trees uprooted.
21. Apr. 29	7:45-8p.m.	Cherokee, Rusk, and Smith	E and NE	50	45	0	4	5	5	In Anadarko community, school cafeteria roof torn off and flung into main building. Two homes damaged. Larger broiler house and 2,000 chickens destroyed. Poultry house demolished with 3,000 chickens destroyed at Griffin. One home demolished, 5 damaged; 1 car, TV antennas, fences, power poles, and outbuildings destroyed or damaged.
22. May 2	10:25 a.m.	Medina and Bexar	NNE	18	200	0	0	5	4	Moved from Pearson to east of LaCoste. Unroofed 10 houses, damaged school and 30 other buildings. Damaged farm home, barns, and outbuildings.
23. May 2	3:20 p.m.	Hays	NE	(a)	(a)	0	0	1	1	Struck in open field 27 miles north of San Marcos.
24. May 2	3:50 p.m.	Williamson	NE	(a)	(a)	0	0	1	1	Struck in open country northwest of Taylor.
25. May 3	1:45-2:30 a.m.	Gregg, Harrison, Cass, and Smith	NE and N	80	440	0	0	5	1	Unroofed garage 5 miles east of Tyler. Struck Oil Center community. Damaged houses, roofs, and powerlines west of Kilgore. Passed aloft over Longview, came to earth near Saline River bottom, uprooting numerous trees, moved to Hallsville area, east of Longview. In Hallsville to Harleton to Marshall areas, 15 houses damaged, 2 completely destroyed. Then moved northward to Hughes Springs.
26. May 3	2:30 a.m.	Cass	E	30	(a)	0	0	4	1	Business buildings and homes unroofed, school damaged, and windows shattered 1-1/2 miles east of Hughes Springs.
27. May 3	2:30 a.m.	Bexar	ENE	20-30	(a)	0	0	4	5	Shop building destroyed and 2 homes unroofed at Fair Oaks. House unroofed, several others damaged, and 3 miles of powerlines ripped out south of Losoya.
28. May 3	3 a.m.	Angelina	SE	(a)	(a)	0	0	4	1	In Red Town community, 1 house and several outbuildings damaged; several barns unroofed; damage to commercial timber.
29. May 3	3 a.m.	Harrison	SE	5	440	0	0	4	1	In Nesbitt community, 8 miles northeast of Marshall, roofs torn from 1 house and several outbuildings; considerable damage to 8 other houses; large trees uprooted.
30. May 3	8:50 a.m.	Karnes	SE	(a)	(a)	0	0	(d)	1	In Green community, 2 farms struck. Barns and poultry houses unroofed, trees uprooted, and billboards torn down.
31. May 12	5 p.m.	Hockley	NW	(a)	(a)	0	0	(d)	1	Struck 1 farm home near Sundown.
32. May 16	10-30-10:50 a.m.	Scurry	E	1/2	10	0	0	1	1	Touched ground briefly in open country 13 miles north of Snyder.
33. May 17	1:10 a.m.	Potter	(a)	1/4	20	0	0	1	1	On ground for only a moment in open country 10 miles southwest of Amarillo.
34. May 27	2:36 p.m.	Lubbock	SE	10	(a)	0	0	1	1	On ground about 5 minutes in open field near Shallowater.

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TEXAS (Cont'd)										
35. May 28	6:40 a.m.	Cass	ESE	(a)	100	0	0	3	1	Lifted and destroyed garage, ripped shingles from house and downed trees at Atlanta.
36. May 29	7 p.m.	Harris	SE	1/2-3/4	700	0	0	T/3	C	Near Barker, large barn unroofed, house roof, other barns, and sheds damaged.
37. June 2	9:25 a.m.	Galveston	NNW	(a)	(a)	0	0	1	1	Waterspout observed southwest of Galveston.
38. June 3	7:40-8:25 a.m.	Nueces	SSW	(a)	(a)	0	0	1	1	Waterspout 1,000 feet long moved slowly 7 miles east of Corpus Christi.
39. June 6	11:30 p.m.	Hunt	SE	1	50	0	0	4	1	Struck only at airport at Greenville, destroyed hangar and heavily damaged 5 planes.
40. June 8	7:30 p.m.	Taylor	SE	3/4	65-75	0	0	(d)	1	Small farm buildings and trees damaged 11 miles northeast of Abilene.
41. June 13	8:20 p.m.	Armstrong	SW	1/2	50	0	0	3	1	Destroyed barn, tore up porch, and broke windows 48 miles southeast of Amarillo.
42. June 16	5:30-6 p.m.	Deaf Smith	(a)	3	50	0	0	3	1	Gin and 14 houses unroofed, glass blown from houses, and 14 trailers damaged 10 miles southwest of Hereford.
43. June 16	6:45 p.m.	Brewster	SW	(a)	100	0	0	3	1	Most of house roof torn off, moved 100 yards; 2 bedrooms with contents ruined at Study Butte.
44. June 20	1:15 a.m.	Hutchinson	SSE	1/4	150	0	2	4	1	At Electric City, 3 miles north of Borger, roofs of 5 buildings and 3 trailer homes damaged, fourth trailer home demolished and occupants injured. Tornado on ground about 1 minute.
45. June 20	2:44 a.m.	Gray	(a)	(a)	(a)	0	0	1	1	Over open country 5 miles southeast of Lefors; on ground 5 minutes.
46. June 20	7:30 a.m.	Cooke	(a)	1/4	50	0	0	1	1	Struck open field 5 miles west of Gainesville.
47. June 20	9 a.m.	Rockwall	(a)	1/4	25	0	0	1	1	In open field 4 miles southeast of Royse City.
48. June 21	3 p.m.	Brown	NE	1/2	100	0	0	(d)	1	Garage, windows, TV antennas, out-buildings, and trees damaged 10 miles northeast of Brownwood.
49. June 21	3-3:30 p.m.	Brown	SE	1/4	100	0	0	(d)	1	Damaged a few buildings and trees in Owens community.
50. June 23	7 a.m.	Gray	SW	(c)	10	0	0	3	1	Touched ground for only a moment, damaged large metal garage at Pampa.
51. June 23	(a)	Reagan	S	1/4-100	(a)	0	0	(d)	1	Trees blown down 10 miles north of Big Lake.
52. June 26	10:12 a.m.	Aransas	(a)	(a)	(a)	0	0	1	1	Waterspout near Rockport.
53. July 3	6:15 p.m.	Gaines	SSW	17	(a)	0	0	1	1	Small tornado reported to have touched ground 10 miles south of Seagraves.
54. July 5	2:10 p.m.	Rockwall	(a)	(a)	(a)	0	0	(d)	1	At Rockwall, car blown off road.
55. July 6	1:30 p.m.	Liberty	NE	1/4	(a)	0	0	3	1	Tornado dipped once, damaging hen-houses and cowsheds 3-1/2 miles southwest of Dayton.
56. July 6	5:30 p.m.	Smith	NE	(a)	(a)	0	0	4	1	Destroyed carport and leveled 90-foot high and 150-foot long warehouse wall, damaging contents and also a house roof at Tyler.
57. July 7	2:10 p.m.	Colorado	(a)	(a)	(a)	0	0	1	1	Tornado in open country 10 to 15 miles west of Sealy.
58. July 10	12:15 p.m.	Brazoria	E	(a)	(a)	0	0	1	1	Moved over open country 6 miles west of Alvin.

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						Killed	Injured	Property (exclusive of crops)	Crops	
TEXAS (Cont'd)										
59. July 15	11:20 p.m.	Oldham	E	5	(a)	0	0	(d)	1	Moved over open ranch country 15 miles north of Vega; 150 feet of fence blown down.
60. July 20	4:10 p.m.	Nolan	NE	(c)	(b)	0	0	1	1	Touched ground once or twice in pasture 2 miles southwest of Sweetwater.
61. July 25	1:40 a.m.	Hartley	NE	(a)	(a)	0	0	(a)	1	Truck driver reported he stopped truck to let tornado cross highway 4 miles north of Channing.
62. July 27	4:30-4:40 p.m.	Hutchinson	NE	(c)	(b)	0	0	1	1	Tornado touched ground briefly southwest of Borger.
63. Aug. 3	4:25 a.m.	Johnson	SW	5	100	0	0	3	1	Lifted 250-gallon gas tank three-fourths full, pulled cap off and gas out. Damaged barn, signs, and roofs 2-1/2 miles southwest of Cleburne.
64. Aug. 3	4-4:15 p.m.	Bell	SE	1	50	0	0	(d)	1	Outbuildings blown about, some roofs damaged, and large piece of lumber blown through wall of house 7 miles south of Temple.
65. Aug. 7	11:50 a.m.	Galveston	(a)	(a)	(a)	0	0	1	1	Waterspout 5 miles east of Texas City reported by pilot. Lasted only a few seconds.
66. Aug. 12	2:30-2:40 p.m.	Dallas	E	3	300	0	0	3	1	In Garland-Wylie Park area, park concession building and house trailer damaged.
67. Aug. 12	Late afternoon	Fannin	(a)	1/2	(b)	0	0	(d)	3	Wrecked barn and henhouse, then skipped 100 yards to damage house 5 miles south of Bonham.
68. Aug. 15	4:45-5 p.m.	Bosque	E	1	300	0	0	3	3	Church twisted on foundation, windows exploded out, doors twisted, outbuildings damaged, trees uprooted, TV antennas downed, and home removed from foundation 9 miles east of Clifton.
69. Aug. 20	3:45 p.m.	Floyd and Briscoe	(a)	1	50	0	0	3	(d)	Cornfields damaged, stone veneer stripped from side of house and garage, and thick glass-brick window broken 28 miles northwest of Matador.
70. Aug. 20	4:45 p.m.	Knox	SE	1-1/2	(a)	0	1	3	1	House unroofed, another house destroyed, and large tree trunks twisted off in Vera area.
71. Sept. 14	1 p.m.	Galveston	(a)	(a)	(a)	0	0	1	1	Waterspout seen 5 miles south of Galveston.
72. Oct. 10	1:10 p.m.	Nueces	(a)	(a)	(a)	0	0	1	1	Waterspout seen 9 miles north of Corpus Christi.
73. Nov. 13	9:20 p.m.	Howard	ENE	(a)	(a)	0	0	1	1	Occurred 18 miles north of Big Spring.
74. Nov. 17	6 a.m.	Haskell	NE	(a)	(a)	0	7	5	1	At Weinert, frame house destroyed, TV antennas downed, cotton trailers overturned and wrecked, and large storage building partially unroofed.
75. Nov. 17	6:31 a.m.	Throckmorton	NE	1/4	10	0	0	4	1	Tornado dipped several times at Throckmorton. Tin ripped from roofs on south and west sides, paint sucked from bucket and splashed on wall, about 40 TV antennas downed, and wooden 2-story hotel moved on foundation. Lasted about 45 seconds.
76. Nov. 17	6:45 a.m.	Young	NE	(a)	(a)	0	1	5	1	At Olney, roof ripped off school building, many other roofs damaged, TV antennas twisted, trees uprooted, and fences downed.
77. Nov. 17	7:10 a.m.	Palo Pinto	E	(a)	(a)	0	0	4	1	At Lake Leon and Strawn, boat dock destroyed and another damaged, business and home roofs damaged,

See reference notes at end of table.

† Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
TEXAS (Cont'd)										trees, TV antennas and power poles downed, windows broken, garage doors blown off, 55-foot shed torn from steel and concrete foundations, and house damaged.
78. Nov. 17	7:15 a.m.	Wichita	NE	(a)	(a)	0	0	4	1	Sheets of metal from large new barn scattered along highway for several miles 4 miles west of Wichita Falls.
79. Nov. 17	9:15 a.m.	Grayson	(a)	(a)	(a)	0	0	3	1	At Lake Texhoma, 5 aluminum boats, boat dock, and roofs of buildings damaged.
80. Nov. 17	2-2:30 p.m.	Henderson	(a)	1/2	75	0	0	(d)	1	Moved through pasture and timberland 4 to 5 miles southwest of Marshall.
UTAH (None)										
VERMONT (None)										
VIRGINIA										
1. Apr. 6	6:45 p.m.	Newport News City	NE	1	250	0	0	5	1	Damage to commercial buildings and utilities at Newport News.
WASHINGTON										
1. Apr. 24	5 p.m.	Walla Walla	W	45	(a)	0	0	1	1	Funnel cloud touched ground in wheat field 20 miles northwest of Walla Walla.
2. June 26	6 p.m.	Walla Walla	NE	5	6	0	0	3	1	Boathouse and a few boats and buildings damaged at Wallula Junction.
WEST VIRGINIA (None)										
WISCONSIN										
1. May 17	2:20 p.m.	Marinette	NE	5	80	0	1	5	1	Passed through Wausaukee.
*2. May 24	2:45 p.m.	St. Croix and Pierce	SE	50	50	0	5	5	1	Originated in Minnesota, moved to Hudson and Plum City.
3. May 31	2:30 p.m.	Lafayette	NE	3	(a)	0	0	5	1	Occurred 8 miles north of Darlington.
4. June 4	5:30 p.m.	St. Croix and Dunn	ENE	32	880	19	110	7	4	Moved from 4 miles southwest of Woodville through Colfax.
5. June 4	6:45 p.m.	Chippewa	ENE	12	600	4	56	6	1	Three funnels seen at Chippewa Falls.
6. June 4	7 p.m.	Rusk	ENE	15	200	0	0	4	1	Occurred 10 miles north of Ladysmith.
7. June 4	7 p.m.	Chippewa	ENE	5	300	0	3	5	3	Occurred 1 mile west of Cadott.
8. June 4	7:30 p.m.	Eau Claire, Clark, and Marathon	ENE	60	880	4	3	6	4	From Fall Creek, south of Owen and Stanley, to near Rib Hill.
9. June 22	1:30 p.m.	Chippewa	E	1/4	25	0	0	1	(a)	Touched ground briefly near Lake Wissota.
10. June 22	3:25 p.m.	St. Croix	E	1/4	50	0	0	(d)	1	Touched ground briefly at Hudson.
11. June 30	5:30 p.m.	Lincoln	E	2	50	0	0	3	1	Occurred 5 miles southwest of Tomahawk.
12. July 14	1 p.m.	Barron	E	1	75	0	0	4	1	Occurred near Prairie Farm.
13. July 14	2:45 p.m.	Iron	SE	25	250	0	0	5	1	Occurred near Mercer.
14. Aug. 7	2:57 p.m.	Milwaukee	SE	1	100	0	4	4	1	Occurred near Milwaukee.
15. Aug. 30	5:30 p.m.	Marinette	E	1	100	0	0	4	1	Occurred 3 miles southeast of Wausaukee.
16. Oct. 9	Noon	St. Croix	NE	5	50	0	0	4	3	Occurred 2 miles north of Hudson.
17. Oct. 9	4:45 p.m.	Dane	NE	(a)	(a)	0	0	1	1	Briefly touched ground near Madison.

See reference notes at end of table.

Waterspouts are included in this listing.

TORNADO DATA#

YEAR 1958

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage by categories †		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
WYOMING										
1. June 3	3 p.m.	Big Horn	NE	(a)	400	0	0	4	3	Occurred near Shell.
2. June 3	5:35 p.m.	Campbell	NE	1	10	0	0	1	1	Two tornadoes 7 miles east of Gillette moved over open range.
3. June 3	5:35 p.m.	Campbell	NE							
4. June 8	Afternoon	Goshen	(a)	(a)	100	0	0	4	1	Occurred 2 miles south and 3 miles east of Hawk Springs.
5. June 12	8 p.m.	Weston	E	1	200	0	0	4	1	Airplanes and hanger destroyed at Newcastle.
6. July 10	12:30 p.m.	Crook	(a)	(a)	(a)	0	0	1	1	Two tornadoes 7 miles west of Moorcroft.
7. July 10	12:30 p.m.	Crook	(a)	(a)	(a)					
8. July 10	1:30 p.m.	Campbell	(a)	(a)	(a)	0	0	1	1	Tornado occurred 50 miles south-east of Gillette.
9. July 18	Noon	Laramie	(a)	(a)	(a)	0	0	1	1	Two tornadoes occurred 20 miles west of Cheyenne.
10. July 18	Noon	Laramie	(a)	(a)	(a)					
11. July 20	Morning	Carbon	(a)	(a)	(a)	0	0	1	1	Tornado occurred 45 miles north of Rawlins.
12. July 29	Afternoon	Laramie	(a)	(a)	(a)	0	0	1	1	Tornado occurred 25 miles east of Cheyenne.
13. July 30	(a)	Goshen	(a)	(a)	(a)	0	0	1	1	Tornado occurred southwest of Yoder.
HAWAII (None)										
PUERTO RICO (None)										

Waterspouts are included in this listing.

* Denotes a state boundary-crossing tornado.

T Includes damage to crops.

C Damage to crops.

(a) Datum not obtained.

(b) Narrow

(c) Short.

(d) Amount of damage reported as small; no monetary estimate.

(e) Losses occurred; amount not reported.

(f) Yards instead of miles.

(g) Additional losses occurred.

† Storm damages are placed in categories varying from 1 to 9 as follows

1	Less than \$50	6	\$500,000 to \$5,000,000
2	\$50 to \$500	7	\$5,000,000 to \$50,000,000
3	\$500 to \$5,000	8	\$50,000,000 to \$500,000,000
4	\$5,000 to \$50,000	9	\$500,000,000 to \$5,000,000,000
5	\$50,000 to \$500,000		

TORNADO SUMMARY

YEAR 1958

State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total	State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
ALA.														KY.													
Number	1	4		13	1	3				1			23	Number				5	1	1	1					8	
Days	1	3		3	1	3				1			12	Days				3	1	1	1					6	
Deaths	0	0		1	0	0				0			1	Deaths				0	0	0	0					0	
Injuries	0	0		1	1	0				0			2	Injuries				1	0	3	8					12	
Damages†	4	5		6	4	3				4			3/6	Damages†				3/4	3	4	5					3/5	
ARIZ.														LA.													
Number			1		1		1			1			4	Number	2		1	5	1	1	2	1			2	14	
Days			1		1		1			1			4	Days	1		1	2	1	2	1	1		1		9	
Deaths			0		0		0			0			0	Deaths	0		0	0	0	0	0	0		0		0	
Injuries			0		0		0			0			0	Injuries	2		0	0	0	0	0	0		1		3	
Damages†			3		1		3			1			4	Damages†	4		5	1	1	(c)	1			4		3/5	
ARK.														MAINE													
Number				2			1			1		3	7	Number							5	2				7	
Days				2			1			1		3	7	Days							3	2				5	
Deaths				0			0			0		0	0	Deaths							0	0				0	
Injuries				0			0			0		0	0	Injuries							0	0				0	
Damages†				3/5			(b)			(b)		4	3/5	Damages†							3	5				5	
CALIF.														MD.													
Number	2	2	4	3	1					8	1		21	Number				1	1				12			14	
Days	1	2	4	1	1					1	1		11	Days				1	1				1			3	
Deaths	0	0	0	0	0					0	0		0	Deaths				0	0				0			0	
Injuries	0	0	0	0	0					0	0		0	Injuries				0	0				0			0	
Damages†	3/4	4	3	3/4	4					1	1		3/4	Damages†				4	(c)				1			3/4	
COLO.														MASS.													
Number					3	2	12			1			18	Number					1	6	3	2				12	
Days					3	2	9			1			15	Days					1	3	3	2				9	
Deaths					0	0	0			0			0	Deaths					0	0	0	1				1	
Injuries					0	0	5			0			5	Injuries					0	1	0	0				1	
Damages†					3/3	3/4	3/4			1			3/5	Damages†					(c)	3	5	(c)				3/5	
CONN.														MICH.													
Number								2	1				3	Number				1	2	1	2	1				7	
Days								2	1				3	Days				1	2	1	2	1				7	
Deaths								0	0				0	Deaths				0	0	0	0	0				0	
Injuries								0	0				0	Injuries				0	0	0	0	0				0	
Damages†								3/3	5				3/5	Damages†				3	4	(c)	1	(c)				3/4	
DEL.														MINN.													
Number							1						1	Number				5	5	1	2	1				14	
Days							1						1	Days				2	3	1	2	1				9	
Deaths							0						0	Deaths				0	0	1	1	0				2	
Injuries							0						0	Injuries				2	2	1	7	0				12	
Damages†							(c)						(c)	Damages†				3/5	5	(b)	3/4	3/3				3/6	
D. C.														MISS.													
(None)														Number		8		3				1		1		13	
FLA.														Days		1		2				1		1		5	
Number	7		2	10	7	6	6	6	5	5		1	55	Deaths				0				0		0		13	
Days	3		2	4	5	5	3	3	4	4		1	34	Injuries				0				2		0		82	
Deaths	0		0	0	0	0	0	0	0	1		0	1	Damages†				3/6				3/4		3/4		3/6	
Injuries	1		0	36	0	0	0	0	0	28		1	66	MO.													
Damages†	(b)		3/4	6	1	1	3	3	3	6		4	3/6	Number				2	4	7	5		4	1	6	29	
GA.														Days				2	2	4	5		1	1	2	17	
Number	2		1	3		1		1	1		2		11	Deaths				0	0	0	0		0	2	0	2	
Days	2		1	3		1		1	1		0		10	Injuries				1	0	0	0		0	7	1	9	
Deaths	0		0	0		0		0	0		0		0	Damages†				3/3	3/5	3/5	(b)		3/5	3/5	3/5	3/6	
Injuries	16		2	0		0		0	0		1		19	MONT.													
Damages†	5		3	4		(c)		3	3		5		3/5	Number						2	1	1				4	
IDAHO														Days						2	1	1				4	
Number						1							1	Deaths						0	0	0				0	
Days						1							1	Injuries						0	0	1				1	
Deaths						0							0	Damages†						(c)	1	3				3/3	
Injuries						0							0	NEBR.													
Damages†						4							4	Number				2	4	12	25	10	1			54	
ILL.														Days				1	3	6	10	5	1			26	
Number				4	7	7	3	5		1			27	Deaths				0	0	0	0	0	0			0	
Days				1	2	4	2	3		1			13	Injuries				0	0	1	3	0	0			4	
Deaths				1	0	0	0	0		1			2	Damages†				3	(c)	3/4	3/5	5	3			3/6	
Injuries				13	1	0	3	0		0			17	NEV.													
Damages†				3/5	3/5	3/4	3/5	3/5		3/6			3/6	(None)													
IND.														N. H.													
Number				4	3	13	4		2		1		27	(None)													
Days				2	2	4	3		1		1		13	N. J.													
Deaths				0	0	0	0		0		0		0	Number													

TORNADO SUMMARY#

YEAR 1958

State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
N. Y.													
Number						1		1	1	1			4
Days						1		1	1	1			4
Deaths						0		0	0	0			0
Injuries						0		0	0	0			0
Damages†						4		3/4	(c)	4			3/4
N. C.													
Number		1				1	2						4
Days		1				1	2						4
Deaths		0				0	0						0
Injuries		0				0	1						1
Damages†		3				4	3/3						3/5
N. DAK.													
Number					1	2	3	2	1				9
Days					1	2	3	2	1				9
Deaths					0	0	0	0	0				0
Injuries					0	0	0	2	0				2
Damages†					5	4	4	4	3				5
OHIO													
Number				1	1	3	3	1					9
Days				1	1	3	2	1					8
Deaths				0	0	0	0	0					0
Injuries				0	3	4	3	0					10
Damages†				4	5	3/5	3/4	3					3/5
OKLA.													
Number		2		4	4	8	6	2	4		12		42
Days		1		2	4	6	6	2	3		2		26
Deaths		0		0	0	0	0	0	0		0		0
Injuries		0		1	0	1	0	0	0		19		21
Damages†		4		4	4	3/5	3/4	3	(c)	3/5			3/5
OREG.													
(None)													
PA.													
Number							1						1
Days							1						1
Deaths							0						0
Injuries							0						0
Damages†							3						3
R. I.													
(None)													
S. C.													
Number				4	2			2					8
Days				1	1			2					4
Deaths				1	0			0					1
Injuries				1	1			0					2
Damages†				4	3			1					5
S. DAK.													
Number					1			1					2
Days					1			1					2
Deaths					0			0					0
Injuries					0			0					0
Damages†					3			1					3
TENN.													
Number		2											2
Days		2											2
Deaths		0											0
Injuries		0											0
Damages†		5											5
TEX.													
Number	2		7	12	15	16	10	8	1	1	8		80
Days	1		4	8	8	10	9	5	1	1	2		49
Deaths	0		0	1	0	0	0	0	0	0	0		1
Injuries	0		0	38	0	2	0	1	0	0	8		49
Damages†	3		3/4	6	3/6	3/4	3/4	3/4	1	1	3/5		3/6
UTAH													
(None)													
VT.													
(None)													
VA.													
Number				1									1
Days				1									1
Deaths				0									0
Injuries				0									0
Damages†				5									5

State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept.	Oct	Nov	Dec	Total
WASH.													
Number					1	1							2
Days					1	1							2
Deaths					0	0							0
Injuries					0	0							0
Damages†					1	4							4
W. VA.													
(None)													
WIS.													
Number					3	8	2	2		2			17
Days					3	3	1	2		1			10
Deaths					0	27	0	0		0			27
Injuries					6	172	0	4		0			182
Damages†					6	3/7	5	5		4			3/7
WYO.													
Number						5	8						13
Days						3	5						8
Deaths						0	0						0
Injuries						0	0						0
Damages†						5	1						5
ALASKA													
(None)													
HAWAII													
(None)													
W. INDIES													
(None)													
TOTALS													
Number	14	21	17	81	80	138	125	55	43	20	46	1	641
Days	† 7	† 5	† 11	† 19	† 22	† 28	† 30	† 22	† 18	† 10	† 7	† 1	† 180
Deaths	0	13	0	4	0	42	1	1	1	4	0	0	66
Injuries	17	82	2	93	16	253	30	15	2	35	30	1	576
Damages†	3/5	3/6	3/5	3/7	3/6	3/7	3/6	3/6	3/5	3/6	3/6	4	3/7

* Corrected for boundary-crossing tornadoes.

† Tornado days for country as a whole.

(a) Additional losses reported.

(b) Losses occurred; amount not reported.

(c) Slight damage.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5,000,000
- 7 \$5,000,000 to \$50,000,000
- 8 \$50,000,000 to \$500,000,000
- 9 \$500,000,000 to \$5,000,000,000

Waterspouts are included in this summary; see listing in Tornado Data tabulation.

**NUMBER OF TORNADES, TORNADO DAYS, AND RESULTING LOSSES BY YEARS
1916-1958**

Year	Number torna- does	Number tornado days	Total deaths	Most deaths in a single tornado	Total property losses†	Number of tornadoes causing losses of	
						\$100,000 to \$1,000,000	\$1,000,000 and over
1916	90	36	150	30	6	6	1
1917	121	38	509	101	7	22	5
1918	81	45	135	36	7	19	1
1919	64	35	206	59	7	9	2
1920	87	50	498	87	7	24	7
1921	105	55	202	61	7	13	1
1922	108	64	135	16	7	20	0
1923	102	59	109	23	6	8	0
1924	130	57	376	85	7	25	6
1925	119	65	794	689	7	29	1
1926	111	57	144	23	6	16	0
1927	163	62	540	92	7	28	7
1928	203	79	92	14	7	25	4
1929	197	74	274	40	7	30	1
1930	192	72	179	41	7	28	3
1931	94	57	36	6	6	7	1
1932	151	67	394	37	7	11	1
1933	258	96	362	34	7	31	5
1934	147	77	47	6	6	9	0
1935	180	77	70	11	6	15	0
1936	151	71	552	216	7	17	6
1937	147	75	29	5	6	11	0
1938	213	76	183	32	7	18	3
1939	152	75	87	27	7	10	2
1940	124	62	65	18	7	9	1
1941	118	57	53	25	6	15	0
1942	167	66	384	65	7	32	3
1943	152	61	58	5	7	25	4
1944	169	68	275	100	7	34	7
1945	121	66	210	69	7	25	8
1946	106	65	78	15	7	31	3
1947	165	78	313	169	7	42	5
1948	183	68	140	33	7	53	6
1949	249	80	212	58	7	45	7
1950	199	88	70	18	7	31	1
1951	272	113	34	6	7	27	7
1952	236	98	230	57	7	48	10
1953	437	136	516	116	8	43	15
1954	549	159	35	6	7	41	3
1955	593	153	125	80	7	54	4
1956	532	155	83	25	7	61	13
1957	864	154	191	44	8	75	19
1958	565	166	66	19	7	39	4
Total	9,167	3,412	9,241	---	-	1,161	177
Avg.	213.2	79.4	214.9	---	-	-----	---
Median	152	68	150	---	-	-----	---

NOTE.--The above estimated losses are based on values at time of occurrence.

† Storm damages are placed in categories varying from 1 to 9 as follows:

- | | |
|-------------------------|------------------------------------|
| 1 Less than \$50 | 6 \$500,000 to \$5,000,000 |
| 2 \$50 to \$500 | 7 \$5,000,000 to \$50,000,000 |
| 3 \$500 to \$5,000 | 8 \$50,000,000 to \$500,000,000 |
| 4 \$5,000 to \$50,000 | 9 \$500,000,000 to \$5,000,000,000 |
| 5 \$50,000 to \$500,000 | |

This tabulation does not include funnel clouds that remained aloft or funnels on water surfaces only.

NUMBER OF FUNNEL CLOUDS ALOFT 1958

State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Ala.				1			2						3
Ariz.		1	1				1	1					4
Ark.				3		1	5	3			1		13
Calif.		2	3	6									11
Colo.				4	4	2	11	1					22
Conn.													0
Del.													0
D.C.													0
Fla.			2	1	2	4	5	6	7	1	2		30
Ga.			1		2	2	2	2					9
Idaho													0
Ill.				1			1						2
Ind.				1		15	13	4					33
Iowa					3	1							4
Kans.				5	6	34	31		1	1			78
Ky.						1							1
La.					5	2	2		5	1			15
Maine													0
Md.													0
Mass.					2		1						3
Mich.						3	2						5
Minn.						8	12	6					26
Miss.		2		3	4	3	3	2					17
Mo.				6	15	27	46	4		1			99
Mont.						6	1						7
Nebr.				2	2	10	15						29
Nev.													0
N.H.													0
N.J.													0
N. Mex.						2				1			3
N.Y.													0
N.C.													0
N. Dak.						12	4		2	1			19
Ohio						3	6						9
Okla.				13	9	2	10		8		3		45
Oreg.						2							2
Pa.													0
R.I.													0
S.C.					1				1				2
S. Dak.				1	1	10		4					16
Tenn.				4									4
Tex.	5		2	42	37	45	27	17	18	2	5		200
Utah								1					1
Vy.													0
Va.													0
W. Va.													0
Wis.					1	2	1			2			6
Wyo.						2	3	1					6
Alaska													0
Hawaii													0
W. Indies													0
Total	5	5	9	93	94	200	203	52	42	10	11	0	724

NUMBER OF WATERSPOUTS AND WATERSPOUT DAYS
REPORTED 1948 - 1958

Year	Number touching water only	Number touching land also	Total number water-spouts	Total water-spout days
1948	3	0	3	3
1949	0	0	0	0
1950	1	0	1	1
1951	2	0	2	2
1952	6	6	12	9
1953	13	7	20	14
1954	34	2	36	21
1955	31	7	38	20
1956	16	10	26	16
1957	60	13	73	48
1958	71	9	80	49
Total	237	54	291	183

HAILSTORM LOSSES†

YEAR 1958

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama			4		3/4		3/5		3/4		(d)	4	3/3	
Arizona									3					
Arkansas							(f)	(f)			(f)	(f)	3/4	3/4
California	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)			(d)	(f)	(f)	(f)
Colorado									3/3/6	3/3/5	3/3/4	3/3/6	3/6	3/3/5
Connecticut											(d)			(d)
Delaware														
District of Columbia														
Florida														
Georgia	(d)						3/5	3/5	(d)	3/3/4	(d)	(d)		
Idaho									(f)	(f)	3/3/4	3/3/4	(f)	3/3/5
Illinois							(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
Indiana											4	4		3
Iowa									3/3/6	3/3/5	3/3/6	3/3/6	3/3/4	3/3/5
Kansas							5	5	5	6	5	6	5	6
Kentucky							4		3	3			3	3
Louisiana							3/5	3/3/4						
Maine											3		2	3
Maryland									3	5				3
Massachusetts														3/3
Michigan													4	
Minnesota									5	3/4	(f)	4	(f)	5
Mississippi							3/3/6	3/4			(d)	(d)		
Missouri							3/3/3/6		3/3/3/6		3/3/3/6		(d)	(d)
Montana											4	3/3/6	3/3/6	3/6
Nebraska							(d)	(d)	3/4	3/6	3/6	7	3/6	3/7
Nevada														

HAILSTORM LOSSES†

Section	August		September		October		November		December		Crop season April-Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
Alabama	3/4		3/4			(d)					3/3/3/5	5	3/3/3/5	3/5	3/3/5
Arizona	3					3/5					3	0	3	3/5	3/5
Arkansas											3/3/4	3/3/4	3/3/4	3/3/4	3/3/5
California	(f)	(f)	(f)	(f)	(d)	(d)	(d)	(d)	(d)	(d)	(f)	(f)	(f)	(f)	(f)
Colorado	5	3/3/4		3							3/3/3/6	3/3/6	3/3/3/6	3/3/6	3/3/6
Connecticut											0	(d)	0	(d)	(d)
Delaware											0	0	0	0	0
District of Columbia											0	0	0	0	0
Florida											0	0	0	0	0
Georgia											3/3/3/5	3/3/3/5	3/3/3/5	3/3/3/5	3/3/3/5
Idaho	(f)	(f)	(f)								3/3/3/4	3/3/3/5	3/3/3/4	3/3/3/5	3/3/3/5
Illinois	3/4	(f)									3/4	(f)	3/4	(f)	3/4
Indiana		3	3								3	4	3	3	4
Iowa	3/3/3/5	3/3/3/5			3/3/5	3/3/6					3/3/3/6	3/3/3/6	3/3/3/6	3/3/3/6	3/3/3/7
Kansas			5	4	5						6	7	3	5	7
Kentucky	3	4									4	4	4	4	4
Louisiana											3/5	3/3/4	3/5	3/3/4	3/3/5
Maine	3	3/3/4									3	3/3/5	3	3/3/5	3/3/5
Maryland											3	5	3	5	5
Massachusetts		3									0	3/3	0	3/3	3/3
Michigan	5	4	5	5	5	4					5	5	5	5	6
Minnesota	3/5	3/5	4	(f)							3/3/5	3/3/5	3/3/5	3/3/5	3/3/6
Mississippi											3/3/3/6	3/4	3/3/3/6	3/4	3/3/3/6
Missouri					(d)	(d)					3/3/3/6	(d)	3/3/3/6	(d)	3/3/3/6
Montana		4		3/4							3/7	3/3/7	3/7	3/3/7	3/3/7
Nebraska	4	6	5	5	3	4					3/3/6	3/3/7	3/3/6	3/3/7	3/3/7
Nevada		4									0	4	0	4	4

HAILSTORM LOSSES†

YEAR 1958

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
New Hampshire														g/3
New Jersey														
New Mexico									(d)	c/4	c/5	c/5	(f)	(f)
New York									(f)	(f)			(f)	(f)
North Carolina			3				4	3		5	5	6	4	5
North Dakota											4	5	4	6
Ohio													3	3
Oklahoma							a/c/4	c/4	(f)	c/5	c/6	6	c/4	c/3
Oregon									5	5	5	5	3	5
Pennsylvania														
Rhode Island														
South Carolina								5		(f)		(f)		
South Dakota									4	c/5	c/g/6	c/g/6	c/6	c/g/6
Tennessee								(d)	(f)	(f)	(f)	(f)		
Texas			5		b/g/3			g/5	6	c/g/6	g/5	g/6	a/g/g/6	a/g/g/6
Utah									3	5	3	5	(d)	4
Vermont													3	g/4
Virginia								c/g/4	c/g/4	(f)	c/g/3	3	g/g/4	4
Washington								a/g/g/3	a/g/g/4	a/g/g/4	a/g/g/4	a/g/g/5	a/g/g/4	a/g/g/5
West Virginia								(d)	(f)				4	
Wisconsin											3	4	4	4
Wyoming									5		5	c/5	5	g/5
Alaska														
Hawaii														
West Indies														
Total	(d)	(d)	c/5	(d)	b/g/g/4	(d)	a/b/c/g/6	a/g/g/6	a/b/c/g/6	a/c/g/g/6	a/b/c/g/7	a/c/g/g/7	a/c/g/g/7	a/c/g/g/7

HAILSTORM LOSSES†

Section	August		September		October		November		December		Crop season April-Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
New Hampshire											0	c/3	0	c/3	c/3
New Jersey											0	0	0	0	0
New Mexico	(d)	(d)			g/3						c/5	c/5	c/g/5	c/5	c/g/5
New York	(f)	(f)									(f)	(f)	(f)	(f)	(f)
North Carolina	4	5									5	6	5	6	6
North Dakota	4	5	4	5							5	6	5	6	6
Ohio											3	3	3	3	3
Oklahoma	c/4	c/5		(f)							a/c/6	c/6	a/c/6	c/6	a/c/6
Oregon	3	4									5	5	5	5	6
Pennsylvania	a/g/4	(f)	a/g/g/4								a/g/g/4	(f)	a/g/g/4	(f)	a/g/g/4
Rhode Island											0	0	0	0	0
South Carolina											0	c/5	0	c/5	c/5
South Dakota	g/4	g/6				3					g/g/6	g/g/6	g/g/6	c/g/6	g/g/7
Tennessee		(f)									(f)	(f)	(f)	(f)	(f)
Texas		g/5			3	4	(f)	(f)			a/g/g/6	a/g/g/7	a/b/c/g/6	a/c/g/g/7	a/c/g/g/7
Utah				(d)							c/3	5	c/3	5	c/5
Vermont		3									3	g/4	3	g/4	g/4
Virginia	(f)	(f)									c/g/g/4	c/g/g/4	g/g/g/4	c/g/g/4	g/g/g/5
Washington	a/g/g/3	a/g/g/4		a/g/g/3							a/g/g/4	a/g/g/5	a/g/g/4	a/g/g/5	a/g/g/5
West Virginia											(d)	g/4	(d)	g/4	g/4
Wisconsin	g/3	3	4	3	g/4						g/4	4	g/5	4	g/5
Wyoming	g/3	g/4									g/5	g/5	g/5	g/5	g/g/6
Alaska											0	0	0	0	0
Hawaii											0	0	0	0	0
West Indies											0	0	0	0	0
Total	a/c/g/g/6	a/g/g/g/6	a/c/g/g/6	a/c/g/g/6	a/c/g/g/6	a/c/g/g/6	(f)	(f)	(d)	(d)	a/b/g/g/g/7	a/c/g/g/8	a/b/g/g/g/7	a/c/g/g/8	a/c/g/g/8

- a With Lightning.
- b Includes Crop.
- c Additional losses.
- d Damage reported as slight.
- e With rain.
- f Losses occurred; amount not reported.
- g With wind.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50	7 \$5,000,000 to \$50,000,000
2 \$50 to \$500	8 \$50,000,000 to \$500,000,000
3 \$500 to \$5,000	9 \$500,000,000 to \$5,000,000,000
4 \$5,000 to \$50,000	
5 \$50,000 to \$500,000	
6 \$500,000 to \$5,000,000	

HAILSTORMS LOSSES FOR PAST YEARS

Year	Property (exclusive of crops) †	Crops †	Total †	Year	Property (exclusive † of crops)	Crops †	Total †
1933	-	-	7	1946	7	7	7
1934	-	-	7	1947	6	8	8
1935	-	-	7	1948	7	8	8
1936	7	7	7	1949	7	7	7
1937	7	7	7	1950	7	7	7
1938	7	7	7	1951	7	7	8
1939	5	6	6	1952	7	7	7
1940	6	7	7	1953	7	7	7
1941	6	7	7	1954	7	8	8
1942	6	7	7	1955	7	7	8
1943	6	7	7	1956	7	8	8
1944	7	7	8	1957	7	8	8
1945	7	7	7	1958	7	8	8

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than \$50 4 \$5,000 to \$50,000 7 \$5,000,000 to \$50,000,000
2 \$50 to \$500 5 \$50,000 to \$500,000 8 \$50,000,000 to \$500,000,000
3 \$500 to \$5,000 6 \$500,000 to \$5,000,000 9 \$500,000,000 to \$5,000,000,000

NOTE.--The above estimated losses are based on values at time of occurrence.

WINDSTORM LOSSES†

(Windstorms other than tornadoes)

YEAR 1958

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama	4		4		b/3		3						3/4	
Arizona			4		b/3				3		b/4		b/5	
Arkansas			(d)				(d)				c/h/4	(d)	e/5	b/f/4
California	b/5	(d)	b/h/7	(d)	b/h/6	(d)	b/h/7	(d)	b/4	(d)	b/h/4	(d)	b/h/5	(d)
Colorado			3		4		(d)		(g)		4	4	4	3
Connecticut			b/h/5		(d)						a/4			
Delaware														
District of Columbia											(d)			
Florida	5	(d)			4	(d)							4	(d)
Georgia	4						b/4	b/3	(g)	(g)	b/h/3	(g)	b/h/4	b/3
Idaho			(d)		3				3	(d)	(d)		c/4	(d)
Illinois							5	(d)	6	(d)	5	c/4	5	(d)
Indiana							4		5		a/5		5	3
Iowa							4		b/f/h/6	b/f/h/5	b/f/h/6	b/f/h/6	b/f/h/5	b/f/h/5
Kansas			3				(d)	(d)	(d)	(d)	5	5	6	6
Kentucky							f/5	3	b/3		b/5	4	4	
Louisiana							4		c/4		(d)			
Maine	c/5		c/5		c/6		c/7				5	6	b/h/4	
Maryland									5		6		5	
Massachusetts	c/6		b/c/5		c/6		c/7		b/3		5	4	b/h/5	(g)
Michigan							4		a/4		a/4		3	f/4
Minnesota									(d)	(d)	b/c/4	(d)	(d)	
Mississippi							4	(d)	4					
Missouri			(g)				a/b/f/5		a/b/f/6		a/b/f/6		a/b/f/6	
Montana							3				4			
Nebraska							3		c/4	(g)	c/4	(g)	c/5	(g)
Nevada	(g)													

WINDSTORM LOSSES†

(Windstorms other than tornadoes)

YEAR 1958

Section	August		September		October		November		December		Crop season April-Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
Alabama	4										g/4	0	g/5	0	5
Arizona	g/5		4								b/c/5	0	b/c/5	0	b/c/5
Arkansas					(g)		4				c/5	b/c/4	g/5	b/c/4	b/c/g/5
California	b/h/4	(d)	b/h/5	(d)	b/4	(g)	5	(d)	5	(d)	b/h/7	(d)	b/h/7	(d)	b/c/h/7
Colorado	4	3			4	4	5		4		c/5	4	c/5	4	g/5
Connecticut	3		b/4				5				a/h/5	0	a/b/c/h/5	0	b/c/h/5
Delaware	3										3	0	3	0	3
District of Columbia											(d)	0	(d)	0	(d)
Florida	5	(d)									5	(d)	5	(d)	g/5
Georgia	b/h/3										b/c/h/5	b/c/3	b/c/h/5	b/c/3	b/c/h/5
Idaho	(d)		(d)		(d)		5				c/4	(d)	g/5	(d)	g/5
Illinois	5	(d)	c/4	(d)	(d)	(d)	(d)	(d)			c/6	c/4	c/6	c/4	c/6
Indiana	5	3	4								a/6	3	a/6	3	6
Iowa	b/h/5	b/h/5	b/h/5	b/h/3	b/h/6	b/h/6	b/5		g/4		b/h/6	b/h/6	b/h/6	b/h/6	b/h/6
Kansas	(d)	(d)	3		(d)	(d)	4				c/6	c/6	c/6	c/6	c/6
Kentucky	4	3									b/h/5	4	b/h/5	4	b/h/5
Louisiana	c/3	(g)									g/5	(g)	g/5	(g)	c/5
Maine	b/4				b/4		g/4				b/h/7	4	b/h/7	4	b/h/7
Maryland											6	0	6	0	6
Massachusetts	b/h/5	b/3			b/5		b/5		(g)		b/c/h/7	b/c/4	b/c/h/7	b/c/4	b/c/h/7
Michigan	b/6	f/4	5	5	4	4	g/5				a/b/6	f/6	a/b/c/6	f/6	b/g/f/6
Minnesota	b/c/h/4	(d)	(g)		(d)		(d)				b/c/h/5	(d)	b/c/h/5	(d)	b/c/h/5
Mississippi	c/4	c/4	(g)	(g)	3		4				g/5	c/4	g/5	c/4	c/5
Missouri	b/h/5		b/h/4		a/b/h/4		b/h/5				a/b/h/6	0	a/b/h/6	0	b/h/6
Montana		4		5	4		3				g/4	c/5	g/5	c/5	c/5
Nebraska	c/5	5	(d)		(d)	(g)					c/5	c/5	c/5	c/5	c/5
Nevada		(g)	(g)								(g)	(g)	(g)	(g)	(g)

WINDSTORM LOSSES†

(Windstorms other than tornadoes)

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
New Hampshire	g/5		g/5		g/6		6				5	4	b/h/4	(g)
New Jersey					g/6								b/4	
New Mexico			(g)				(g)							
New York	(d)		(d)		(d)		(d)	(g)	(d)	(g)	6	(g)	(d)	(d)
North Carolina			3				5		4	4	5	4	4	4
North Dakota	4								4	5	4	5	4	4
Ohio											4			
Oklahoma	b/3		g/3	(g)			g/h/5	g/3	g/h/5	(g)	g/h/5	4	b/g/h/5	(d)
Oregon	4		5	3	4		4		5	4	4	4	4	5
Pennsylvania	b/g/4								b/3		b/h/5	(d)	b/h/5	(d)
Rhode Island	(d)				(d)						(d)			
South Carolina			4				g/5	(d)			4		4	
South Dakota									4	3	5	3	3	f/4
Tennessee	(d)		g/3				g/5		(d)	(d)	(d)	(d)	(d)	(d)
Texas	(d)		a/g/5		a/g/5		b/h/h/6	f/3	b/h/h/6	b/6	b/h/h/6	b/5	b/h/5	
Utah									4		3			
Vermont	g/5		g/5		g/5				(g)		4	4	b/h/5	b/3
Virginia	(d)				(d)		b/h/4	b/h/4	(d)	3	b/h/4	b/c/f/4	a/b/h/4	
Washington	a/b/5		a/b/5		a/b/h/4		b/h/3	b/h/3	b/h/4	b/h/5	b/h/4	b/h/5	b/h/4	b/h/5
West Virginia	(d)						b/5	(g)	(d)		5		(d)	(d)
Wisconsin							g/4						3	3
Wyoming							4						4	
Alaska	4				3				(g)				a/4	
Hawaii														
West Indies				(d)				(d)				(d)	(d)	(d)
Total	a/b/c/g/h/6	(d)	a/b/g/g/h/7	g/3	a/b/c/g/h/7	(d)	a/b/c/g/h/7	b/g/h/4	a/b/c/h/6	b/g/h/6	a/b/g/h/7	b/c/h/6	a/b/c/g/h/6	b/g/h/6

WINDSTORM LOSSES†

(Windstorms other than tornadoes)

YEAR 1958

Section	August		September		October		November		December		Crop season April-Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
New Hampshire	b/h/5	3			b/5		c/3				b/h/6	4	b/c/e/h/6	4	b/c/e/h/6
New Jersey	b/4		b/3								b/h/5	0	b/c/h/6	0	b/c/h/6
New Mexico											(g)	0	(g)	0	(g)
New York	4	(d)	5	(d)	(d)						c/6	(d)	c/6	(d)	c/6
North Carolina	4	4	7	6	5	5	4				7	6	7	6	7
North Dakota	4						4				5	5	5	5	5
Ohio	5	(d)									5	(d)	5	(d)	c/5
Oklahoma	b/c/h/5	(d)	b/c/h/4	b/c/6	(d)		c/5		(d)		b/c/h/6	b/c/6	b/c/h/6	b/c/6	b/c/h/6
Oregon	4	5	4		4		6	4			5	6	6	6	6
Pennsylvania	b/h/5	(d)					4				b/h/6	(d)	b/c/h/6	(d)	b/c/h/6
Rhode Island							(d)				(d)	0	(d)	0	(d)
South Carolina	c/3		5	(d)							c/5	(d)	c/5	(d)	c/5
South Dakota	5	(g)					4				5	c/4	5	c/4	c/5
Tennessee	(g)	(d)	(d)				(d)				c/5	(d)	c/5	(d)	c/5
Texas	b/c/h/5	5			b/4		f/h/6				b/h/6	b/6	b/h/6	b/6	b/h/7
Utah					4				(g)		4	0	c/4	0	c/4
Vermont	b/h/4				b/h/3		c/4				b/c/h/5	b/4	b/c/h/5	b/4	b/c/h/5
Virginia	b/c/h/4	(d)	4	(d)							b/c/h/5	b/c/4	b/c/h/5	b/c/4	b/c/h/5
Washington	b/h/4	b/h/5	f/h/4	f/h/3	b/h/4	b/3	b/h/6	(g)	b/c/5	(g)	b/h/5	b/h/5	b/c/h/6	b/c/h/5	b/c/h/6
West Virginia	c/5	(g)									b/c/6	(d)	b/c/6	(d)	b/c/6
Wisconsin	f/4	4	4		b/f/5		5				c/5	4	b/c/5		b/c/5
Wyoming							c/4		(g)	(g)	4	0	c/4	0	c/4
Alaska					5		5				a/c/4	0	a/c/5	0	c/5
Hawaii	a/6										a/6	0	a/6	0	6
West Indies		(d)	(d)	(d)		(d)					(d)	(d)	(d)	(d)	(d)
Total	a/b/c/f/h/6	b/c/f/h/6	b/c/f/h/7	b/c/f/h/6	a/b/c/f/h/6	b/c/h/6	b/c/f/h/7	c/4	b/c/5	(d)	a/b/c/e/f/h/6	b/c/f/h/7	a/b/c/e/f/h/6	b/c/f/h/7	a/c/e/f/h/8

a Includes crop damage.

b With rain.

c Additional losses occurred.

d Losses occurred; amount not reported.

e With snow.

f With hail.

g Damage reported as small.

h With lightning.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5,000,000

7 \$5,000,000 to \$50,000,000

8 \$50,000,000 to \$500,000,000

9 \$500,000,000 to \$5,000,000,000

WINDSTORM LOSSES PAST YEARS

(Windstorms other than tornadoes)

Year	Total loss of life	Total property loss †	Year	Total loss of life	Total property loss †
1916	65	7	1938	630	8
1917	25	8	1939	60	6
1918	79	7	1940	251	7
1919	344	7	1941	43	7
1920	42	6	1942	68	7
1921	65	7	1943	61	7
1922	133	7	1944	448	8
1923	68	7	1945	85	7
1924	78	7	1946	70	7
1925	88	7	1947	117	8
1926	357	8	1948	52	8
1927	64	7	1949	102	8
1928	1,947	8	1950	210	8
1929	46	7	1951	289	8
1930	49	7	1952	137	8
1931	17	7	1953	118	8
1932	306	7	1954	292	9
1933	156	8	1955	301	8
1934	109	7	1956	196	8
1935	461	7	1957	553	8
1936	121	7	1958	129	8
1937	43	7	Total	8,875	

† Storm damages are placed in categories varying from 1 to 9 as follows

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5,000,000

7 \$5,000,000 to \$50,000,000

8 \$50,000,000 to \$500,000,000

9 \$500,000,000 to \$5,000,000,000

NOTE.--The above estimated losses are based on values at time of occurrence.

NORTH ATLANTIC TROPICAL STORMS, 1958

HOWARD C. SUMNER

Marine Section, Office of Climatology, U. S. Weather Bureau

Ten tropical storms occurred over the North Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico during the 1958 season. Seven of these storms reached hurricane intensity, which is considerably above the annual hurricane average of 4.6. Despite the large number of severe hurricanes, only the storm centers of Tropical Storm Alma and Hurricane Ella actually entered the United States. Ella, however, lost hurricane force as it passed south of Cuba and was only of tropical storm intensity as it crossed the Gulf of Mexico and passed inland near Corpus Christi, Tex.

Although the center of Hurricane Helene did not cross the United States coastline, it paralleled the North Carolina coast about 20 miles offshore, bringing the hurricane force winds to coastal points and resulting in wind and flood damage estimated at \$11,200,000.

The loss of life in the United States resulting from 1958 tropical storms was limited to two deaths by drowning, one in heavy surf near Galveston during the passage of Alma, the other that of a man washed overboard from a boat near the same city on September 3, during Ella. Reports from the West Indies indicate the loss of at least 47 lives in 1958 tropical storms that reached that area, including 6 or 7 in Cuba, 35 or more in Haiti, 3 in Puerto Rico, and 2 in the Bahamas.

A summary of the individual storms follows. Their tracks appear on figure 2.

TROPICAL STORM ALMA, JUNE 14-16

Tropical Storm Alma developed along the western fringe of the Gulf of Mexico on June 14 from a low pressure area that had drifted northwestward from the Bay of Campeche during the previous day. Reaching tropical storm intensity about 150 miles east of Tampico, Mexico, near noon on the 14th, the center moved north-northwestward and passed inland about 75 miles south of Brownsville, Tex., early on the 15th.

The highest winds associated with this storm were 40 to 43 kt. reported by MV MADA near 22.8°N., 95.6°W.; 50 kt. from a Coast Guard aircraft flying 50 miles south of Port Isabel, Tex., at 0800 C.S.T. on June 15; and 40 m.p.h., with peak gusts to 45 m.p.h., at South Padre Island, Tex., about 1000 C.S.T. on the same date. Brownsville reported a fastest mile of 33 m.p.h. from the southeast, with a peak gust of 38 m.p.h., at 0822 C.S.T. on June 15.

A low pressure of 997.3 mb. (29.45 in.) was observed by the vessel mentioned above. The highest tide reported was 2.9 feet above mean low water at South Padre Island. Heavy rains averaging 7 to 10 inches fell in the hill country west of San Antonio with some amounts as high as 20 inches reported from the area west of Medina, Tex. One drowning occurred in a heavy surf near Galveston during the storm period.

TROPICAL STORM BECKY, AUGUST 8-17

Radio reports from the MV TATRA on August 10 revealed the existence of a severe tropical disturbance over the North Atlantic Ocean in the vicinity of the Cape Verde Islands. The reports indicated a cyclonic circulation of possible storm intensity near 17°N., 28°W. No additional reports from the area were received during August 10 and, as a result, the motion and the actual intensity

of the disturbance could not be determined until the 11th when a series of reports from the MV INDUSTRIOUS confirmed the existence of a circulation of tropical storm intensity in the vicinity of 18°N., 45°W. At noon on the 12th an Air Force reconnaissance plane fixed the center at 17.5°N., 51.0°W. moving westward at 17 m.p.h. Subsequent reconnaissance reports showed an increased forward motion to about 25 m.p.h. but with no appreciable increase in the speed of the winds. The highest winds were estimated at about 60 kt. on August 13 and 14 and up to 75 kt. winds were reported in squalls about 210 miles east-northeast of the center on the 14th. The minimum surface pressure observed was 1006 mb. (29.71 in.). The eye of the storm was poorly defined. Strong winds were observed only in the northern semicircle, with light winds in the southern half.

During the afternoon of August 13 the storm shifted to a northwesterly direction, diminishing the threat to the Caribbean Islands. The center passed some distance to the north of the Antilles and northeast of the Bahamas. Reconnaissance aircraft and ship reports early on August 15 indicated that Becky had degenerated into an area of squalls. However, late on the 16th, after the storm had moved into a frontal zone and become extratropical, rapid intensification occurred, with one ship reporting hurricane force winds for a short time.

Storm warnings were issued on August 12 for the northern Leeward Islands and a storm watch was put into effect for Puerto Rico and the Virgin Islands.

No loss of life or serious damage has been reported as a result of tropical storm Becky. However, high waves and surf along the Atlantic coast on August 17 and 18 appear to have been caused by the dissipating storm.

HURRICANE CLEO, AUGUST 11-21

On August 11 weather conditions and 24-hour pressure changes in the Cape Verde Islands indicated that a strong easterly wave with possibly a small closed circulation was passing to the south. On the 12th and 13th observations were received from a number of ships moving through the edges of the storm. None of these reports were near enough to locate the center but did indicate a large cyclonic circulation near 15°N.

The first observation from a ship in the immediate vicinity of Cleo came on August 14 from the International Geophysical Year Ship WEST FALBARSTEN at 16.1°N., 45.7°W., indicating a wind from the east-southeast of 37 kt. and a surface pressure of 1010 mb. This placed the center near 14°N., 46°W. and showed that the depression had intensified to storm and possibly to hurricane proportions. At 1820 G.M.T. on August 14 Cleo's eye was penetrated by an Air Force reconnaissance plane which located the center at 14.7°N., 47.1°W. with highest winds 127 kt. and a minimum surface pressure of 960 mb. (28.35 in.), thus confirming the existence of a severe hurricane. During August 15 the hurricane turned northward with steadily decreasing wind speeds, although aircraft reports showed a deepening to 947 mb. (27.96 in.). The MV TAHITIEN encountered Cleo on the 15th and 16th when the storm started to move northward. The storm continued in a generally northerly direction until the 20th when it became extratropical near 47°N., 48°W. and recurved to the east-southeast, dissipating off the Portuguese coast on the 21st.

NORTH ATLANTIC TROPICAL STORMS—Continued

No land areas in the eastern Caribbean were affected by hurricane Cleo, and no reports of damage to shipping have been received. The hurricane was, however, a serious threat to Atlantic shipping throughout its history as it traversed the principal transatlantic shipping lanes.

HURRICANE DAISY, AUGUST 24-31

The first indication that a tropical storm had developed a short distance northeast of the Bahamas came in a weather observation from the SS ALAMAR on August 24 reporting low pressure and strong winds. At 2000 E.S.T. the center was located by a Navy reconnaissance plane at 26.9°N., 75.7°W., or about 300 miles east-northeast of Miami, Fla., with maximum winds of about 43 kt. and a central pressure of 1002 mb. (29.59 in.).

During the forenoon of August 25 Daisy developed hurricane force winds as the center remained practically stationary. Movement in a northerly direction began again in the afternoon and during the following 2 days the center continued to drift slowly northward. Later the forward movement increased as the storm skirted the Atlantic coast and moved out over the Atlantic south of Nova Scotia on the 29th.

Hurricane Daisy was of greatest intensity during the night of August 27-28 while moving off the Georgia and Carolina coasts. During that period the strongest winds near the center were about 109 kt. and the central pressure was about 935 mb. (27.61 in.).

Although the center of Daisy passed within 75 miles of Cape Hatteras and Nantucket, the area of highest winds was concentrated in a small zone and the full wind effect was not felt on the coast. The Weather Bureau Station at Hatteras, N. C., reported a highest wind of 27 m.p.h. from the north-northwest with gusts to 36 m.p.h., and the station at Block Island, R. I., reported a fastest mile of 40 m.p.h. from the northeast and a gust of 45 m.p.h. At the "Texas Tower" located 120 miles east of Cape Cod winds of 69 m.p.h. with a gust to 87 m.p.h. were recorded.

No loss of life has been reported from this hurricane. Although tides were considerably above normal during passage of the storm, flooding was minor and little damage has been reported.

HURRICANE ELLA, AUGUST 30-SEPTEMBER 6

An easterly wave of unusual intensity moved into the Lesser Antilles on August 30. Upon arrival of the wave in the eastern Caribbean region, intensification was evident in a small low pressure center with a wind circulation with speeds from 30 to 35 kt. and a central pressure of 1010 mb. (29.82 in.). An additional pressure drop of about 2 mb. occurred as the storm moved into the Caribbean Sea a short distance west of Dominica. At 0145 G.M.T. of August 31 a wind observation of 45 kt. was reported from the northwest quadrant of the storm by PAA Flight 201 enroute San Juan to Port of Spain, Trinidad. The first advisory on Ella was issued at 0403 G.M.T., August 31, and at that time gale warnings were raised to whole gale for the southern sections of the Virgin Islands, Puerto Rico, and the Dominican Republic and gale warnings were continued for adjacent areas. Reconnaissance aircraft flew into the storm at 0430 G.M.T. on August 31 and, by radar, located a center near 16.4°N., 64.7°W. with maximum winds of 48 to 52

kt. Wind speeds in Puerto Rico and the Virgin Islands reached between 30 and 40 kt. in some instances.

Later reports indicated hurricane force winds as Ella moved along a westward course 140 miles south of Puerto Rico. Hurricane warnings were put into effect for the southern portions of the Dominican Republic and Haiti. During the morning of September 1 the hurricane turned to a more northwestward path and crossed Haiti's southern peninsula. Reconnaissance aircraft on the 1st reported winds of 100 kt. and lowest pressure of 989 mb. (29.20 in.) while the center was over the Caribbean between Jamaica, Haiti, and eastern Cuba. Continuing on a track south of the Windward Passage, the hurricane moved along the southern coast of Cuba and out over the Gulf of Mexico with a large, poorly defined center. There was no evidence of hurricane force winds after the storm left southern Cuba. Ella passed some 160 miles south of Key West on the morning of September 3. Highest winds near the center at that time were only 40 to 50 kt., but higher speeds associated with squalls were scattered over the north and east portions of the storm system. Reports of winds over 50 kt. came from the Straits and Keys at distances up to 250 miles from the center. The highest wind recorded at Key West International Airport was 59 m.p.h. from the southeast at 0558 E.S.T. on September 3. The highest wind over the Gulf of Mexico, west of 85°W., was 55 kt., reported by the SS JEAN LYKES near 24.5°N., 85.5°W. late on September 3.

As Ella approached the Texas coast there was some minor flooding of low and exposed places on Galveston Island, Bolivar Peninsula, the Kemah-Seabrook area, the Texas City-La Marque area, and Matagorda Peninsula. The center passed inland near Corpus Christi during the early morning hours of the 6th, with a number of stations in the area reporting wind gusts of 40 to 50 m.p.h.

Tides of 3 to 4 feet above mean low water, spotty rainfall ranging as high as 13.60 inches in 3 1/2 days at Galveston Airport, and wind gusts to 75 m.p.h. in some areas resulted in flooding and damage at a number of localities along the Gulf coast. Additional pressure, wind, precipitation, and tide values are listed in Table 1.

Damage in Florida was confined almost entirely to the Keys. Very little damage was reported in Texas other than the loss of a shrimp trawler on the Galveston Jetty during the night of September 3. One man was washed overboard and lost from a snapper boat near Galveston the same night.

Heavy rains and floods caused damage estimated at \$100,000 in the Dominican Republic, mostly in the southwest portion. No fatalities were reported there. In Haiti, the passage of Ella was accompanied by torrential rains resulting in severe flooding over low areas. Water was 5 to 6 feet deep over some roads, and the city of Aux Cayes was under water for a day. Near that city 30 persons in a bus were drowned in an attempted stream crossing. In Cuba 7 persons were drowned in floods resulting from torrential rains. Total property damage was estimated at \$100,000.

HURRICANE FIFI, SEPTEMBER 4-12

Fifi developed as a tropical storm in an easterly wave over the North Atlantic Ocean east of the Lesser Antilles. Intensification was indicated, and upon reconnaissance by aircraft at 1645 A.S.T.

NORTH ATLANTIC TROPICAL STORMS—Continued

on September 5, a center was located near 14.9°N., 54.3°W. with maximum surface winds of 55 kt. and solid wall clouds around the eye. The minimum surface pressure at the time was 1000 mb. (29.53 in.)

Gale warnings were issued for the Leeward and northern Windward Islands, and a hurricane watch was put into effect for the same areas at 1800 A.S.T. on the 5th. Warnings were discontinued after the hurricane passed 16°N. and no longer posed a threat to the area. Fifi passed within 150 miles of the Leeward Islands, but no loss of life or damage to property was reported.

Subsequent reconnaissance at 0930 A.S.T. on the 6th indicated that the storm had increased to hurricane intensity and was located at 17.0°N., 57.5°W. attended by surface winds up to 80 kt.

During the next 4 days the storm, moving northwestward, slowly lost intensity and by the 10th its forward speed had slowed to about 6 m.p.h. and its winds had dropped to 35 kt. On the following day forward movement accelerated and the storm moved off to the northeast, dissipating on the 12th about 250 miles east of Bermuda.

TROPICAL STORM GERDA, SEPTEMBER 13-15

Tropical storm Gerda developed in a moderate easterly wave that had been under surveillance east of the Lesser Antilles for several days. By 0600 G.M.T. on September 13 the wave had moved to a position west of Barbados and reports from the area of the northern Windward Islands showed heavy shower activity, a 24 hour pressure fall of 3 mb. at St. Lucia and evidence of a circulation in the vicinity of that station.

At 1500 G.M.T. on September 13 a weak circulation was located near 14.8°N., 62.8°W., about 130 miles to the west of Martinique. A subsequent reconnaissance flight failed to locate a circulation and, aside from a 47 kt. wind from the southeast at a position near 17.2°N., 64.6°W., winds during the flight were generally southerly 10 to 15 kt. At this stage the center seemed to have filled and the storm degenerated for a time into a series of squalls over the Leeward and Virgin Islands and Puerto Rico.

Later reconnaissance confirmed a redevelopment of the circulation in the area about 75 miles southwest of Ciudad Trujillo. Highest winds were about 45 kt. in the northeast and east quadrants and 60 kt. in the southeast quadrant. At 0600 G.M.T. of the 14th a ship observation about 30 miles south-southwest of Cabo Rojo reported gusts to 65 kt., and the storm center was located by radar at 17.6°N., 67.6°W. The USCG Cutter PANDORA west of St. Croix, V. I. at 0600 G.M.T. reported winds of 55 kt. in squalls, and at the same hour the MV PARAGUAY at 16.8°N., 67.6°W. reported a wind from the east of only 10 kt.

Small craft warnings were changed to gale warnings along the south coasts of Puerto Rico and Hispaniola at 0800 G.M.T. on September 14. Small craft warnings continued in effect for the remainder of the area.

Highest winds in the storm occurred as it passed over the southwest peninsula of Haiti during the night of September 14-15. On the 15th it decreased in intensity, lost any definite circulation, and degenerated into a easterly wave.

Reports indicate that there were three deaths in Puerto Rico as a result of the storm. Two youths were drowned on September 13 while fishing in a

small boat and an elderly man succumbed to injuries sustained when his dwelling in San Juan collapsed during a squall.

HURRICANE HELENE, SEPTEMBER 21-OCTOBER 3

Hurricane Helene developed as a weak circulation in an easterly wave in the Atlantic trade wind belt on September 21. By the 24th the storm had increased to hurricane intensity as it advanced along a slow and somewhat erratic course toward the coast of Georgia and the Carolinas.

By Friday morning, September 25, Helene had intensified to a point where she posed a severe threat, and the Georgia and South Carolina coasts south of Charleston were placed under "Hurricane Watch". At 1100 E.S.T. hurricane emergency warnings were issued for the coastal areas between Savannah and Cape Fear. At this time the center of Helene was located about 260 miles east of Brunswick, Ga., moving northwestward toward the coast at 14 m.p.h. Throughout the day the hurricane increased in intensity and, despite high pressure over the eastern United States, the center continued on a course toward the coast and full emergency measures, including evacuation, were put into force. On the 26th reconnaissance aircraft found that the central pressure had fallen to 948 mb. (27.99 in.) with wind near the center in excess of 90 kt; compared with 988 mb. (29.18 in.) and 64 to 78 kt. the day before.

During the night the storm gradually began a curve toward the north, and hurricane warnings were extended northward to Cape Hatteras at 2200 E.S.T. on the 26th and to Manteo, N. C., on the following morning. Observations indicated that Helene reached her greatest intensity early on the 27th when a low pressure of 933 mb. (27.55 in.) was reported. During the forenoon the hurricane turned toward the northeast with the center passing about 18 miles southeast of Cape Fear and moving approximately northeastward at a speed of about 10 m.p.h. Hurricane force winds, accompanied by high tides and torrential rains, pounded the coastal area around Wilmington. The Weather Bureau Airport Station at Wilmington recorded a fastest mile of 88 m.p.h. from the north and a peak gust of 135 m.p.h. from the north-northeast at 1241 E.S.T. on September 27. Both of these speeds greatly exceeded all previous records at Wilmington. The lowest pressure at that station was 975 mb. (28.795 in.) recorded at 1319 E.S.T., and the total rainfall during passage of the hurricane was 8.29 in. During this period a Navy reconnaissance plane reported a low surface pressure of 938 mb. (27.70 in.) and an observer at Cape Fear estimated winds at 125 m.p.h. with gusts to 150-160 m.p.h. Paralleling the coast the center moved east of Cape Lookout, passed Cape Hatteras just before midnight, and headed out into the Atlantic.

At 1700 E.S.T. on the 28th hurricane Helene was located by reconnaissance aircraft and vessel reports near 38.3°N., 65.5°W. or about 320 miles southeast of Nantucket moving toward the east-northeast at a forward speed of about 32 m.p.h. The highest winds were still estimated in excess of 87 kt., and gales extended outward several hundred miles from the center. Helene weakened gradually as it moved over the open ocean, but was still a dangerous storm as it crossed the main shipping lanes and passed along the coast of Nova Scotia. Winds were still of hurricane force as

NORTH ATLANTIC TROPICAL STORMS—Continued

the storm moved across Newfoundland. For several days more Helene maintained her identity as she moved eastward over the North Atlantic as an extra-tropical storm. Additional pressure, wind, precipitation, and tide values are listed in Table 2.

Wind velocities and wind damage associated with the passage of Helene indicate a more intense hurricane than Hazel of 1954, but the fact that this year's storm passed about 20 miles off the coast with the strongest winds offshore at a time of low tide militated against the heavy high water and wave damage associated with the 1954 hurricane. A careful swell count made at Wrightsville Beach on the morning of September 27 by a member of the staff of the Weather Bureau Office at Wilmington showed only 2-1/2 to 3 per minute. This figure is probably the lowest count ever recorded for the area and indicates a storm of exceptional intensity.

Damage was greatest in the North Carolina coastal area from the South Carolina line northward to the vicinity of Topsail Beach. North of Topsail Beach damage tapered off gradually but was still of considerable degree and extent through the Morehead City - Beaufort - Atlantic Beach area. Damage dropped sharply inland, with little structural damage reported more than 10 miles from the coast. Total damage in North Carolina has been estimated at \$11 million. Damage to beach installations along the upper South Carolina coast was slight and was estimated at \$200 thousand.

Despite the destructive nature of Helene, not a single death has been reported as resulting directly from this hurricane. This fact indicates a spectacular record when the number of persons living in the affected area is considered. Such a record is only possible through complete cooperation of all agencies charged with preparation for the emergency and expert management after passage of the storm. Whole communities prepared for and, in some cases, carried out complete evacuation from exposed areas, such as Wrightsville Beach.

HURRICANE ISLA, SEPTEMBER 24-29

The first evidence of the existence of this storm was noted when reports from the MV ORANGJES-TAD and MV SANTA RITA were plotted on the 1200 G.M.T. chart of September 24. These observations indicated a closed circulation near 16.5°N., 53.0°W. Reports from stations in Martinique, showing 24-hour pressure falls of more than 2 mb. were also indicative of this development to the east.

In order to investigate this area of suspected development, an Air Force reconnaissance aircraft was diverted from its normal track and, at 1600 G.M.T. September 24, confirmed a circulation center at 17.7°N., 54.0°W. By morning of the 25th the storm had increased to hurricane intensity and was

moving west-northwestward about 14 m.p.h. That evening its forward movement slowed, and it began a turn toward the northwest. This movement continued at about 5 m.p.h. until it reached the vicinity of 20°N. During this period highest winds near the center were about 85 kt. and surface pressure 957 mb. (28.26 in.). Later the hurricane increased in intensity, and during the 26th-27th highest winds reached over 110 kt. and the central pressure dropped to 932 mb. (27.52 in.). After passing about 250 miles to the east of Bermuda during the evening of the 28th, the storm curved off toward the northeastward and by the 30th became a part of the extensive extratropical stage of hurricane Helene.

HURRICANE JANICE, OCTOBER 5-12

Hurricane Janice developed on October 5 as a tropical depression in a strong easterly wave located south of Cuba, which at 1600 G.M.T. was near 20.7°N., 81.7°W., or 175 miles south-southeast of Havana. The depression formed a large area of heavy squalls and rough seas that had, during the previous 3 days, drifted westward from the area south of Ciudad Trujillo, Dominican Republic. Ship and commercial aircraft reports from the squally area in the vicinity of Haiti showed winds of 43 kt. but no signs of a circulation.

Upon reaching the longitude of western Cuba, the depression developed a circulation and moved northeastward across Cuba at a forward speed of about 15 m.p.h. and over the Bahama Islands area some 150 miles to the east of Miami. Late on October 6 the storm developed hurricane intensity. Minimum pressure in the Bahamas was 988 mb. (29.18 in.) at Harbour Island, Eleuthera. The highest wind was 63 m.p.h. at San Salvador, and Nassau reported 61 m.p.h. One man lost his life in Nassau Harbor.

During October 7 and 8 the forward movement slowed to about 7 m.p.h. On the 9th the speed accelerated as the storm moved northeastward over the North Atlantic passing about 300 miles south-east of Cape Race, Newfoundland, on the afternoon of October 11, at which time movement had increased gradually to about 44 m.p.h.

The lowest pressure for hurricane Janice, 968 mb. (28.59 in.), was reported at 0235 E.S.T. on October 10 by an Air Force reconnaissance aircraft. The highest surface wind speed was estimated at 78 kt. over a small area near the center on the 7th and again on the 10th.

Damage was estimated at \$200,000 to \$300,000 in the Bahamas. In Jamaica rains in excess of 20 inches and resultant floods destroyed homes, disrupted communications, and caused severe crop damage. There have been no reports that Janice caused damage in coastal areas of the United States.

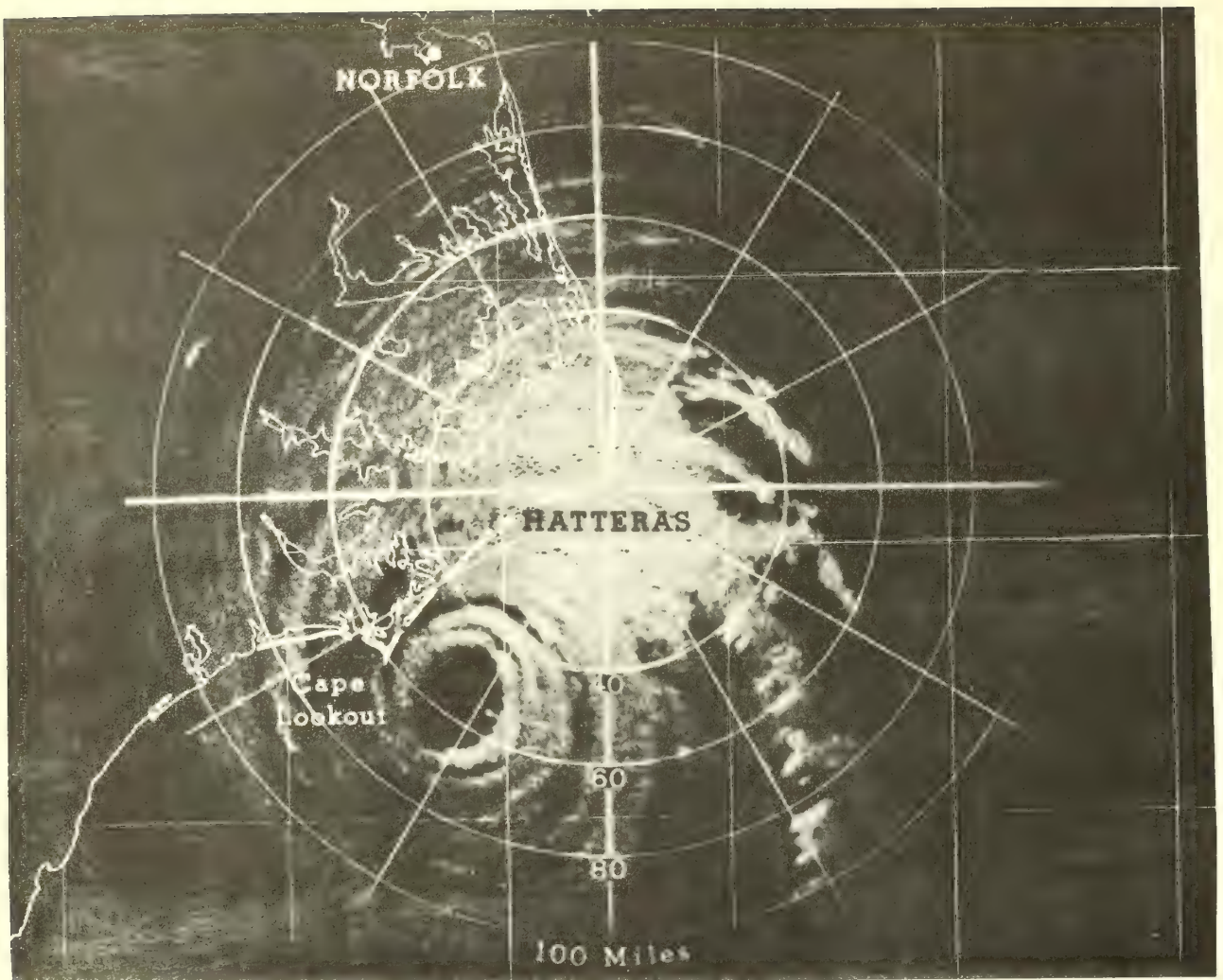


Figure 1. Radar photograph of hurricane Helene taken at Cape Hatteras, N. C., at 1805 E.S.T. September 27, 1958, superimposed on a map of the coastal area of North Carolina and Virginia. The center was located just east of Cape Lookout and was about 55 miles, 215° from Cape Hatteras. Range markers are set at 20-mile intervals. This radar photograph was sent immediately by facsimile from the station to the Forecast Center for operational use.

TROPICAL STORM DATA

ELLA

AUGUST 30 - SEPTEMBER 6, 1958

Station	Date Sept	Pressure (inches)		Wind (miles per hour)				Rainfall (inches)	Remarks
		Low	Time*	Fastest mile	Time*	Gusts	Time*		
FLORIDA									
Miami	3	29.94						1.65	
Key West	3			59 SE	5:58a.	38	4:48a.		Highest tides 2.0 feet above mean low water
ALABAMA									
Mobile	3			30	1:19p.	42	1:19p.		
LOUISIANA									
Burwood	3	29.88							
Point au Fer	4	29.86							
Grand Isle	5	29.90				75	9:00a.		
Cameron	5	29.74							
TEXAS									
Sabine (USCG)	5	29.76	3:00p.			50 ENE	7:00p.	4.05	Highest tide 4.1 feet above mean low water
Galveston								13.60	Rainfall for a period of 3 1/2 days
Victoria (WBAS)	5	29.68	5:50p.	35	1:25p.†	36	1:09p.†	2.29	
Port Lavaca	5	29.70		54		63		5.04	
Port O'Connor (USCG)	5	29.68	4:30p.	38		43			Highest tide 3.9 feet above mean low water
Rockport	5	29.66	6:00p.	18 NNE	4:00p.	25 NNE	4:00p.	3.01	Highest tide 2.5 feet above mean low water
Port Aransas	5	29.65	5:30p.	41 NW	8:00a.	46 NW	8:00a.		Highest tide 3.2 feet above mean low water
Corpus Christi (WBAS)	5	29.65	12:30a.†	26 N	2:45p.	35 N	8:56p.	2.09	Highest tide 3.7 feet above mean low water at 9:00a, September 6.
Padre Island	5			28 ENE	2:00a.	40 ENE	2:00a.	5.10	Swells offshore 8 to 10 feet on September 5
Kingsville	5	29.59							

* Times for Florida are Eastern Standard
† September 6, 1958

Times for Alabama, Louisiana, and Texas are Central Standard

TABLE 1

TROPICAL STORM DATA

HELENE

SEPTEMBER 21 - OCTOBER 3, 1958

Station	Date Sept	Pressure (inches)		Wind (miles per hour)				Rainfall (inches)	Remarks
		Low	Time*	Fastest mile	Time*	Gusts	Time*		
SOUTH CAROLINA									
Charleston	27	29.48	5:00a.	63 WNW†	5:01a.			0.52	High tide 1.6 feet above normal
Sullivan's Island	27	29.35	4:20a.	60 WNW	5:00a.				
Georgetown	27	29.27	6:35a.	60	8:00a.			2.52	Highest tide 2.1 feet above normal
Murrells Inlet	27	29.27	6:25a.	18 NNE		40		0.34	High tide 3 to 4 feet above normal
Myrtle Beach	27	29.25		60 WNW	8:00a.				
NORTH CAROLINA									
Wilmington (WBAS)	27	28.795	1:19p.	88 N	1:01p.	135 ENE	12:41p.	8.29	High tide 5.1 feet above mean sea level+
Cherry Point	27	28.80	5:09p.			97 NNW	6:52p.	4.54	High tide 6.0 feet above mean sea level
New Bern	27	29.11	5:01p.	52 N	7:05p.	83 N	7:05p.	4.35	High tide 3.3 feet above mean sea level
Hatteras	27	28.73	9:23p.	69 NNE	9:55p.	106 N	10:42p.	4.85	High tide 7.5 feet above mean sea level/
Fort Macon (USCG)	27	28.68				127			
Elizabeth City	27	29.51	9:00p.	35 NNE	10:00p.	52 NNE	10:00p.	6.58	
Rocky Mount	27	29.52	6:00p.	25 N	9:00p.	44 N	9:00p.	6.08	
Tarboro	27	29.47#	6:00p.	25 N	8:00p.	34 NNW	7:30p.	6.20	
Oriental	27	28.68	6:30p.			80 NNW(E)	8:00p.		
Frying Pan Shoals									
Lightship	27	28.18				127 SSE	1:30p.		
Cape Lookout	27	27.98#	5:30p.			144 SE(E)			

* All Times Eastern Standard

† Highest 1 minute maximum

As reported; calibration of barometer unknown

(E) Estimated

+ At Wrightsville Beach

/ In Pamlico Sound

TABLE 2

HURRICANES AND TROPICAL DISTURBANCES

(Names of storm in table correspond to names on tracks shown on accompanying chart)

YEAR 1958

Storm name	Date	Area where first reported	Coast lines crossed	Highest wind speed reported	Lowest pressure reported *	Place of dissipation reported	Intensity	Remarks
ALMA	June 14-16	Southwestern Gulf of Mexico	Mexico	50 knots reported by Coast Guard aircraft 50 miles south of Port Isabel, Texas at 8:00 a.m. on June 15.	997.3 mb. (29.45 in) reported by MV MADA	Southwest Texas	Tropical Storm	One drowning in heavy surf near Galveston.
BECKY	Aug. 8-17	Vicinity of the Cape Verde Islands	None	Up to 75 knots reported in squalls about 210 miles east-northeast of the center on the 14th.	1006 mb. (29.71 in) reported by reconnaissance aircraft.	North Atlantic Ocean near 43°N, 57°W.	Tropical Storm	No loss of life or serious damage reported.
CLEO	Aug. 11-21	South of the Cape Verde Islands	None	127 knots reported by Air Force reconnaissance plane near 14.7°N, 47.1°W on the morning of the 14th.	947 mb. (27.96 in) reported by reconnaissance aircraft.	Eastern North Atlantic Ocean off the coast of Portugal.	Hurricane	A threat to Atlantic shipping throughout its history, but no reports of damage received.
DAISY	Aug. 24-31	Northeast of the Bahama Islands	None	About 109 knots while hurricane center was off the Georgia and Carolina coasts.	935 mb. (27.61 in) off the Georgia and Carolina coasts.	Central North Atlantic near 42°N, 37°W.	Hurricane	Flooding was minor and little damage reported.
ELLA	Aug. 30-Sept. 6	East of the Lesser Antilles	Haiti, Cuba, and Texas	100 knots reported by reconnaissance aircraft between Haiti and eastern Cuba on the 1st.	989 mb. (29.20 in) reported by reconnaissance aircraft on the 1st	Southern Texas	Hurricane	Damage in Florida confined almost entirely to Keys. Damage in Texas light. Heavy damage and some loss of life on the Island of Hispaniola.
FIFI	Sept. 4-12	Mid-ocean east of the Lesser Antilles	None	80 knots reported by aircraft reconnaissance.	1000 mb. (29.53 in) near 15°N, 54°W.	East of Bermuda	Hurricane	No loss of life or damage to shipping reported.
GERDA	Sept. 13-15	Near the Lesser Antilles	Dominican Republic and Haiti	60 knots reported by reconnaissance aircraft off the coast of Hispaniola.	1004 mb. (29.65 in) By reconnaissance aircraft.	Between Jamaica and eastern Cuba	Tropical Storm	Three deaths in Puerto Rico.
HELENE	Sept. 21-Oct. 3	Northeast of the Lesser Antilles	Newfoundland	125 m.p.h. estimated at Cape Fear, North Carolina on the 27th.	933 mb. (27.55 in) reported on the morning of the 27th.	Eastern North Atlantic	Hurricane	No loss of life. Damage in North Carolina estimated at \$11,000,000, in South Carolina \$200,000.
ILSA	Sept. 24-29	Over the Atlantic near 18°N., 54°W.	None	110 knots reported by reconnaissance aircraft during the 26th-27th.	932 mb. (27.52 in) with extra-tropical stage of hurricane Helene.	Combined	Hurricane	No damage to shipping reported.
JANICE	Oct. 5-12	South of Cuba	Cuba	75 knots estimated by Air Force reconnaissance aircraft on the 7th and again on the 10th.	968 mb. (28.59 in) reported on the 10th by reconnaissance aircraft.	North Atlantic Ocean near 50°N, 25°W.	Hurricane	Property damage and severe crop losses in Jamaica. No reports of damage in the United States.

*Reduced to sea level

TABLE 3

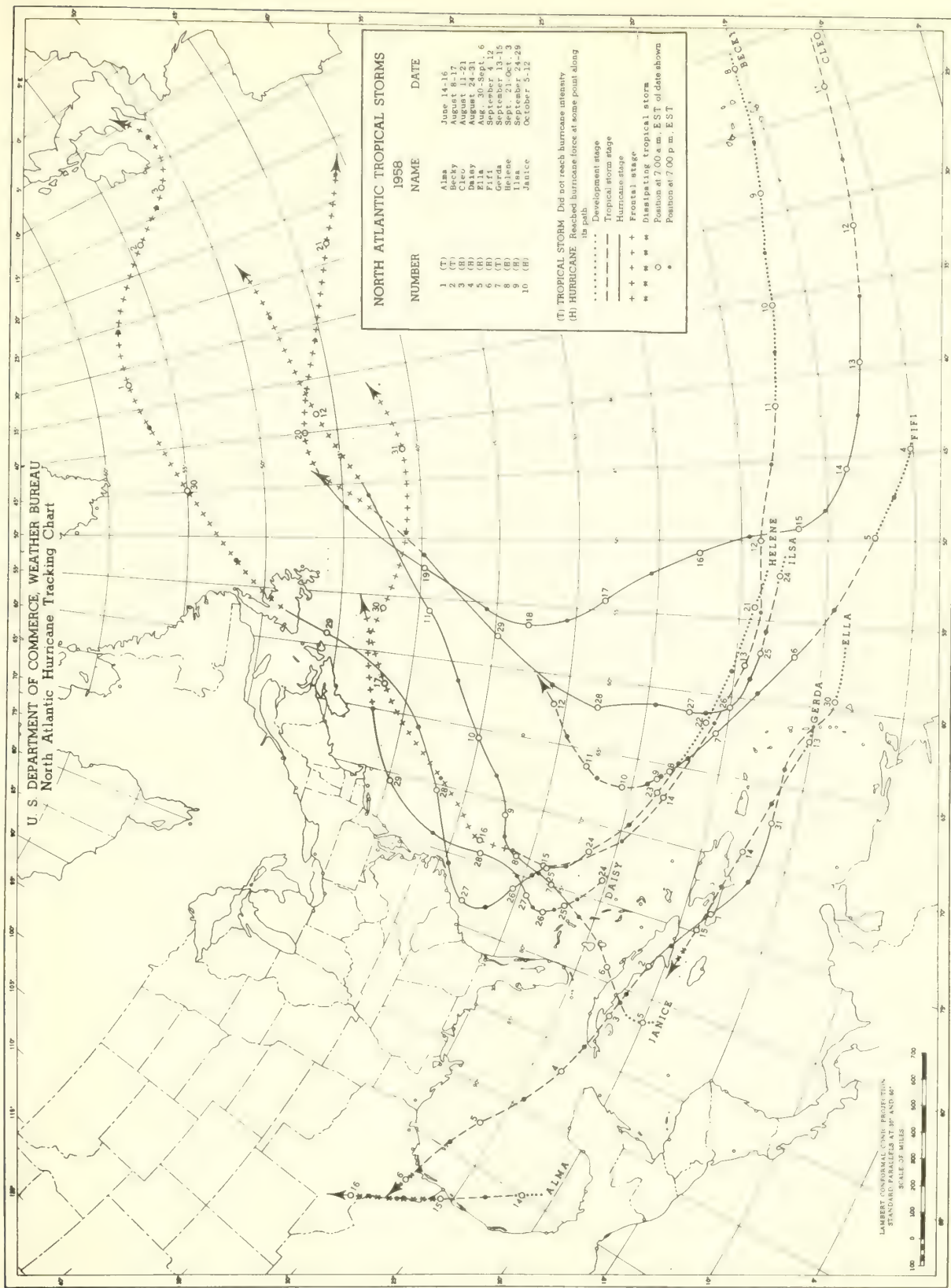


FIGURE 2

NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES FOR PAST YEARS

Frequency of tropical storms (including hurricanes) by months and season										
		May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1886			3	1	2	2	2			10
1887		1		2	2	3	6	1		17
1888			1	1	2	2	1	3	2	10
1889		1	1		1	5	1			9
1890					1					1
1891				1	2	3	4	1		11
1892			1		1	4	3			9
1893			1	1	5	3	1	1		12
1894					2	1	3			6
1895					2	1	3			6
1896				1	1	2	2			6
1897					1	2	2			5
1898					1	5	2			9
1899				1	2	1	2			6
1900					1	3	3			7
1901			2	2	2	3	2			10
1902					1	1	1	1		5
1903			1	1	1	4	2	1		9
1904			1			1	3			5
1905						3	2			5
1906			2		1	3	4	1		11
1907	Mar. 1		1		1	2	1			4
1908				1	1	3	2			8
1909			2	2	2	2	1	1		10
1910					1	2	1			4
1911					2	1	1			4
1912			1	1		1	2	1		6
1913			1		1	1	1			4
1914						1				1
1915				1	2	2				5
1916			1	2	3	4	3	1		14
1917					2	1				3
1918					3	2				5
1919				1		1		1		3
1920						4				4
1921			1			3	2			6
1922			1			1	2			4
1923					1	1	5			7
1924			1		2	2	2	1		8
1925						1		1		2
1926				1	2	5	2	1		11
1927					1	3	3			7
1928					2	3	1			6
1929			1			1	1			3
1930					2					2
1931			1	1	2	3	1	1		9
1932		1			3	3	3	1		11
1933		1	1	3	7	5	3	1		21
1934		1	1	1	2	2	3	1		11
1935					3	1	2			6
1936			3	2	6	4	1			16
1937				1	2	6				9
1938					3	1	3	1		8
1939			1		1	1	2			5
1940		1			3	2	2			8
1941						4	2			6
1942					3	3	3	1		10
1943				1	2	4	3			10
1944			1	3	2	4	2			11
1945			1	1	4	3	1			10
1946			1	1	1	1	2			6
1947				1	2	3	1			7
1948		1		1	2	3	1	1		9
1949					3	7	2			13
1950					4	3	6			13
1951		1			3	4	2			10
1952	Feb. 1				2	2	2			7
1953		1			3	4	4	1	1	14
1954			1	1	2	4	1		1	11
1955				1	1	5	2			12
1956			1	1	1	4	1			8
1957			2		1	4	1			8
1958			1		4	4	1			10
Totals	Feb. Mar. 1 1	9	37	39	133	193	138	26	4	581

Frequency of tropical storms reaching hurricane intensity by months and season										
		May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1886			2	1	2	2	1			8
1887				1	2	3	2	1	1	10
1888			1		2	1				5
1889	1				1	3		1		5
1890					1					1
1891				1	2	3	2			8
1892					1	2	1			4
1893			1	1	5	3				10
1894					1	1	3			5
1895					1		1			2
1896				1	1	2	2			6
1897					1	1				2
1898					2	2				4
1899				1	2	1	1			5
1900					1	2				3
1901				1	2					3
1902			1			1	1			3
1903				1	1	3	2	1		8
1904						1	1			2
1905							1			1
1906			1		1	2	2			6
1907										0
1908	Mar. 1			1		2	1			5
1909				1	1	1	1			4
1910						2	1			3
1911					2	1				3
1912					1	1	2	1		4
1913			1		1	1				3
1914										0
1915					2	2				4
1916			1	2	3	2	2	1		11
1917					1	1				2
1918					2	1				3
1919						1				1
1920						4				4
1921			1			2	1			4
1922						1	1			2
1923					1	1	1			3
1924					2	1	1	1		5
1925								1		1
1926				1	2	4	1			8
1927					1	3				4
1928					2	1	1			4
1929			1			1	1			3
1930					2					2
1931						2				2
1932					3	1	1	1		6
1933			1	1	3	3	1			9
1934			1	1	1	1	1	1		6
1935					2	1	2			5
1936			1	1	3	2				7
1937						3				3
1938					2	1				3
1939					1		2			3
1940					3	1				4
1941						3	1			4
1942					3			1		4
1943				1	1	2	1			5
1944				2	1	3	1			7
1945			1		1	1	1			4
1946				1		1	1			3
1947					2	1	2			5
1948					1	3	1			6
1949					2	4	1	1		7
1950					4	3	4			11
1951		1			2	3	2			8
1952					2	2	2			6
1953					2	3	1			6
1954			1		2	3	1		1	8
1955					3	5	1			9
1956				1	1	1	1			4
1957			1			2				3
1958					3	3	1			7
Totals	Mar. 1	2	16	21	99	123	64	11	2	339

NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES FOR PAST YEARS -Continued

TOTAL NUMBER OF HURRICANES AND TROPICAL STORMS, LOSS OF LIFE AND DAMAGE								
Total number tropical storms*			Total number hurricanes		Loss of Life		Damage by categories**	
Year	In all areas	Reaching U.S.Coast	In all areas	Reaching U.S.Coast	Total all areas	In United States	Total all areas	In United States
1886	10	7	8	6				
1887	17	10	10	3				
1888	10	6	5	3				
1889	9	4	5	2				
1890	1	0	1	0				
1891	47	21	29	14				
1892	11	4	8	2				
1893	12	7	10	6				
1894	6	3	5	2				
1895	6	4	2	1				
1896	44	21	29	11				
1897	6	4	6	4				
1898	5	4	2	1				
1899	9	6	4	3				
1899	6	4	5	3				
1900	7	3	3	1	6000			7
1901	10	6	3	2	10			6
1902	5	3	3	1	#			#
1903	9	2	8	2	9			6
1904	5	3	2	2	#			6
1905	5	2	1	0	#			#
1906	11	5	6	4	285			7
1907	4	3	0	0	#			#
1908	8	2	5	1	#			#
1909	10	7	4	3	404			7
1910	4	2	3	2	13			6
1911	4	2	3	2	17			6
1912	6	4	4	2	12			6
1913	4	3	3	2	#			#
1914	1	1	0	0	#			#
1915	5	4	4	3	600			8
1916	14	8	11	6	107			7
1917	3	1	2	1	5			5
1918	5	2	3	1	34			6
1919	3	2	1	1	287			7
1920	4	3	4	2	2			6
1921	6	2	4	2	5			6
1922	4	1	2	0	0			#
1923	7	4	3	2	0			4
1924	8	4	5	2	2			3
1925	27	12	15	7	6			3
1926	11	4	8	4	269			8
1927	7	1	4	0	0			#
1928	6	3	4	2	1836			7
1929	3	2	3	2	3			6
1930	2	1	2	0	0			2
1931	9	5	2	0	0			#
1932	11	5	6	2	0			#
1933	21	7	9	5	63			7
1934	11	5	6	3	17			6
1935	6	2	5	2	414			7
1936	16	7	7	3	9			5
1937	8	4	3	0	0			4
1938	8	4	3	2	600			8
1939	5	3	3	1	3			3
1940	8	3	4	2	51			6
1941	46	21	20	8	10			7
1942	10	4	4	2	17			7
1943	10	4	5	1	19		7	7
1944	11	4	7	3	1076		8	8
1945	10	5	4	3	29		8	8
1946	47	20	24	11	5	0	7	7
1947	9	4	5	3	72	53	8	8
1948	9	4	3	3	24	3	7	7
1949	13	3	7	2	4	4	8	8
1950	13	4	11	3	27	19	7	7
1951	10	1	8	0	244	2	7	6
1952	7	2	6	1	16	3	6	6
1953	14	6	2	3	2	2	7	7
1954	11	4	3	3	720+	193	9	9
1955	12	5	3	3	1518+	218	9	9
1956	54	2	37	9	76	21	8	7
1957	8	5	3	1	475	395	8	8
1958	10	1	7	0	49	2	7	7
	26	8	14	2				
Total	581	262	339	143				
Median	8	4	4	2				

** This is a new form of presentation of storm damage estimates. The Weather Bureau has for some time recognized the fact that without detailed expert appraisal of damage all figures published are merely approximations to fact. Since errors in dollar estimates vary in proportion to the total damage, storms are placed in categories varying from 1 to 9 as follows:

- | | | |
|-------------------|----------------------------|------------------------------------|
| 1 Less than \$50 | 4 \$5000 to \$50,000 | 7 \$5,000,000 to \$50,000,000 |
| 2 \$50 to \$500 | 5 \$50,000 to \$500,000 | 8 \$50,000,000 to \$500,000,000 |
| 3 \$500 to \$5000 | 6 \$500,000 to \$5,000,000 | 9 \$500,000,000 to \$5,000,000,000 |

Blank spaces indicate no figures available.

* Including hurricanes.

Not reported in literature, believed minor.

+ Additional deaths for which figures are not available.

EASTERN NORTH PACIFIC TROPICAL STORMS, 1958

Eugene H. Quinn
U. S. Weather Bureau, San Francisco, California

Twelve tropical storms were charted in the area between the U. S. coast and 140°W. and from the equator to 40°N. during the 1958 season. This is the largest number of storms observed in the area since 1945, the year when complete summaries became available. Of these, five were known or assumed to have reached hurricane intensity. This season compares with 1956 in the unusual amount of early season storm activity. By the end of July six storms had been tracked. This is close to the average number of storms for the whole season.

Special advisories were issued at 6-hourly intervals for all storms which were expected to have winds of Beaufort force 8 (34 kt.) or greater. The San Francisco Forecast Office issued a total of 157 advisories.

The tropical storm of June 12-14 brought heavy damage to Mexican fishing vessels in the Gulf of Tehuantepec as it moved northwestward. The hurricane of September 6-12 severely battered the tuna clipper COURAGEOUS near Clarion Island, in the Revilla Gigedo group, but the ship was able to ride out the storm. The town of San Jose del Cabo, at the tip of Baja California, was virtually wiped out as the hurricane of September 29-October 4 roared northward into the Gulf of California.

The Hurricane of June 5-14.--This hurricane was detected by the report from the HAWAIIAN BANKER, which encountered a west-southwest wind of 40 kt. at 11.7°N., 97.3°W. at 1800 G.M.T. of the 5th. The center of the storm was estimated at 12.1°N., 97.3°W. Later reports from the HAWAIIAN BANKER indicated a westward movement of the center at 7 kt. for 24 hours and then west-northwestward movement. In the first 42 hours of the known history of the storm, the reported winds were below the 40 kt. originally reported by the HAWAIIAN BANKER. However, at 1800 G.M.T. of the 7th the HAWAIIAN TOURIST was experiencing a 45-kt. north wind and pressure of 992 mb. (29.29 in.) at 13.6°N., 103.4°W., which was evidently very close to the center. This was the lowest pressure reported for the storm. Ship reports were inadequate to define the location of the center again until the 9th, when the hurricane center passed close to the ARAGON. This ship was buffeted by a 60-kt. wind on the night of the 9th. By piecing available information together the following seems a reasonable description of the later history of the storm. It evidently began to slow down and weaken between the 10th and 11th, then curved toward the northeast on the 13th and 14th. A weak low system was centered near 22.7°N., 109.2°W. at 0000 G.M.T. of the 15th.

The Tropical Storm of June 12-14.--At 0830 G.M.T. of the 11th the MONARCH, located at 13.7°N., 93.6°W. reported rough seas and 40- to 50-kt. west to northwest winds. Later, at 2200 G.M.T. of the 12th the SANTA ANITA observed an east-southeast wind of 40 kt. at 13.9°N., 90.8°W. The MEIRINSAN MARU, located at 12.8°N., 93.0°W., reported the lowest pressure for the storm of 1000 mb. (29.53 in.). A small tropical storm was estimated to be centered near 12.4°N., 91.6°W. At 0600 G.M.T. of the 13th there was some indication that the storm was located near 13.2°N., 92.3°W. Later reports were insufficient to follow this storm closely. It is presumed that this storm was the source of severe weather in the Gulf of Tehuantepec and that it had

been moving northwestward at about 7 kt. to pass inland near Tehuantepec on the 14th.

The Hurricane of July 18-21.--The WAITEMATA reported a northeast wind of 45 kt. at 18.8°N., 128.7°W. at 0000 G.M.T. of the 19th. The ship was located a short distance northwest of a storm center estimated at 17.6°N., 127.5°W. and moving westward at 11 kt. At 0600 G.M.T. of the 19th the WAITEMATA experienced a decrease in wind to 34 kt. and a veering to east. This storm was believed to continue on westward and weaken, so that by the 21st only a weak tropical depression remained. At 1200 G.M.T. of the 21st the center was assumed to be near 17.7°N., 138.4°W.

The Hurricane of July 21-25.--This storm was first detected a short distance northeast of the preceding one. At 1200 G.M.T. of the 21st the HAWAIIAN TOURIST, with a northerly 25-kt. wind at 20.7°N., 126.0°W., provided an indication of a tropical low center near 19°N., 125°W. Six hours later, the HAWAIIAN TOURIST reported a slight wind increase. By this time a tropical storm was believed to be centered near 19.2°N., 125.8°W. and moving westward at 7 kt. An Air Force reconnaissance flight located the center near 19.5°N., 131.0°W. at 2300 G.M.T. of the 22d and observed winds up to 65 kt. near the center. A second flight found the center at 21.0°N., 132.6°W. at 0000 G.M.T. of the 24th, indicating movement west-northwestward at 10 kt. The flight observations revealed a weakening storm. A third reconnaissance flight, 24 hours later, located a weak storm center near 22.4°N., 133.9°W. By 0000 G.M.T. of the 26th the storm had probably become a weak depression near 24°N., 135°W.

The Tropical Storm of July 26-29.--At 0600 G.M.T. of the 26th winds up to 35 kt. were reported off the extreme southern Mexican coast. At 2200 G.M.T. of the 26th the SARANGAN reported passing through a storm center near 16.7°N., 102°W. The lowest pressure had been 997.6 mb. (29.46 in.). North-east winds of force 9 veered to southwest force 9 as the storm center passed. Winds up to 45 kt. were reported in the storm area for the next 18 hours. The ELIZABETH encountered a 55-kt. wind just south of the center at 0000 G.M.T. of the 28th. The center position was estimated at 18.8°N., 107.0°W. Gale winds were reported in the storm area through 0600 G.M.T. of the 29th. By this time it had curved to the northwestward with a speed of 14 kt. It began to weaken at about this time and become a weak poorly-defined low pressure system by 0000 G.M.T. of the 30th near 26°N., 117°W.

The Tropical Storm of July 31-August 1.--The identification of this storm was based entirely on the 0500 G.M.T. report of the 31st from the PIONEER MIST at 15.7°N., 111.2°W. An easterly wind of force 4 to 5 in the preceding 12 hours at this ship had changed to calm about an hour before the observation, and this was followed by a south-southwest force 8 to 9 wind with heavy rain squalls and very rough seas. A tropical storm was assumed to have formed in this area. From a few subsequent reports the assumed storm is believed to have moved west-northwestward at 11 kt., but there was insufficient evidence to continue charting the storm beyond 1200 G.M.T. of the 1st, when it was estimated near 18.9°N., 117.5°W.

The Tropical Storm of August 12-14.--The HAWAIIAN

EASTERN NORTH PACIFIC TROPICAL STORMS--Continued

YEAR 1958

TOURIST, located at 17.8°N., 120.7°W. at 1800 G.M.T. of the 12th reported a northeast wind of 45 kt. This was the first indication of a small tropical storm estimated to be centered about 25 miles southeast of the HAWAIIAN TOURIST and moving westward at 10 kt. Highest winds near the center were estimated to be 60 kt. The PIONEER MOOR passed about 70 miles north of the storm on the 13th and encountered easterly wind up to 30 kt. There were no further reports near the storm, and it is assumed to have weakened and become a tropical depression near 18°N., 130°W. by 0000 G.M.T. of the 15th.

The Hurricane of September 6-12.--This was an unusually severe storm. Its first indication was the 1200 G.M.T. report of the 6th from the island of Roca Partida (19.0°N., 112.0°W.) indicating a southeast wind of 40 kt. An intensifying low pressure system was estimated near 18°N., 112°W. The tuna clipper COURAGEOUS was reporting squally weather and heavy swells from northerly directions at 18°N., 115°W. at 1420 G.M.T. of the 6th. The storm center was evidently moving west-northwestward at 6 kt. By 1645 G.M.T. of the 7th the COURAGEOUS was hit by the hurricane with winds of 100 to 130 kt. from the south-southwest, 4 miles northwest of Clarion Island (18.4°N., 114.7°W.). The wind decreased at the COURAGEOUS by 2045 G.M.T. of the 7th but was still 70 to 80 kt. with heavy seas. The eye of the storm was located by an Air Force reconnaissance flight at 19.5°N., 117.6°W. at 1730 G.M.T. of the 8th. Maximum surface winds near the center were 90 kt. No further ship reports were received near the storm, but two more Air Force reconnaissance flights were made. They indicated a movement westward at 5 kt. The storm is believed to have moved west-southwestward at about 7 kt. and to have become unimportant near 17°N., 130°W. by 1200 G.M.T. of the 13th.

The Tropical Storm of September 10-11.--This storm became evident while the hurricane of September 6-12 was still in progress. At 1200 G.M.T. of the 10th the KIAORA, at 20.4°N., 107.6°W. encountered force 7 to 8 east-southeast winds with a very rough sea. By 1800 G.M.T. of the 10th a fairly well defined tropical storm was evident near 20.4°N., 107.6°W. Both the KIAORA and PIONEER MYTH were reporting winds of approximately 40 kt. within 70 miles of the center. The storm moved northwestward at 8 kt. for about 6 hours and then began to curve gradually to the right. It passed through the southern tip of Baja California.

The Hurricane of September 29-October 4.--The first indication of this storm was provided by the 0000 G.M.T. report of the 30th from the SUNRAY at 16.6°N., 99.8°W., where a 44-kt. wind was blowing. This report, combined with reports from the BARBARA and HEREDIA, placed a tropical storm center near 16.0°N., 100.3°W. At 0600 G.M.T. of the 30th the WIHINAPA apparently was located in the

eye of the storm at 16.3°N., 101.1°W. The wind was calm and the sea confused. Three hours later the wind at the WIHINAPA had become south-southwest 54 kt. and the FOLLIS, located about 35 miles northeast of the storm, was encountering a 60-kt. wind. The storm was evidently moving west-northwestward at about 6 kt. By 0000 G.M.T. of the 2d the storm was centered near 17.3°N., 104.2°W. and had weakened. Shortly afterward it curved toward the northwest and accelerated. The storm began to regenerate on the 3d. At 1800 G.M.T. of the 3d the storm was centered near 20.8°N., 109.1°W. and had been moving northwestward at 9 kt. The AGHIA MARINA, located about 25 miles north of the storm at 1900 G.M.T. of the 3d was experiencing winds up to force 10. By 0100 G.M.T. of the 4th the wind at the AGHIA MARINA had increased to force 11. The ship was then located at approximately 21.3°N., 109.2°W. The KOHCHO MARU, at 22.2°N., 109.7°W. had easterly winds of 64 kt. The hurricane was moving north-northwestward at 11 kt. at this time. It passed over the tip of Baja California. The HARRY LUNDEBERG reported the location of the center at 25.1°N., 110.1°W. at 1200 G.M.T. of the 4th, having encountered winds of 80 to 90 kt. The storm began to weaken and crossed the Mexican coast near Guaymas on the 4th.

The Tropical Storm of October 14-16.--A weak tropical depression was near 13°N., 102°W. at 0000 G.M.T. of the 13th. Winds were up to 30 kt. within 150 miles of the center. It moved west-northwestward at 15 kt. for 24 hours, with winds occasionally up to 35 kt., and then headed westward. By 1500 G.M.T. of the 14th the depression was known to have become a tropical storm. The TOHORU was reporting southwesterly winds of 38 kt. at 14.7°N., 112.0°W. just east of the storm center. Three hours later, winds had increased to 44 kt. The TOHORU remained a short distance east-southeast of the storm for almost 24 hours. There were no other ship reports in the area, and the storm was assumed to have become a weak depression by 0000 G.M.T. of the 17th near 15°N., 124°W.

The Tropical Storm of October 29-30.--The PIONEER MIST, heading westward, encountered a weak tropical depression at 0000 G.M.T. of the 28th near 15.7°N., 111.1°W. The depression was stationary for the next 12 hours and then began moving northeastward, accelerating to about 10 kt. around 0000 G.M.T. of the 29th. Intensification was occurring, and by 1600 G.M.T. of the 29th tropical storm intensity was reached as indicated by the report of a south-east wind of 40 kt. from the ANGELO PETRI at 19.9°N., 106.4°W. about 60 miles east-northeast of the center. At the same time the ANDINO, at 20.0°N., 106.0°W. was reporting winds of 47 kt. The storm moved inland, with rapid weakening, near Cape Corrientes during the night of the 29th.

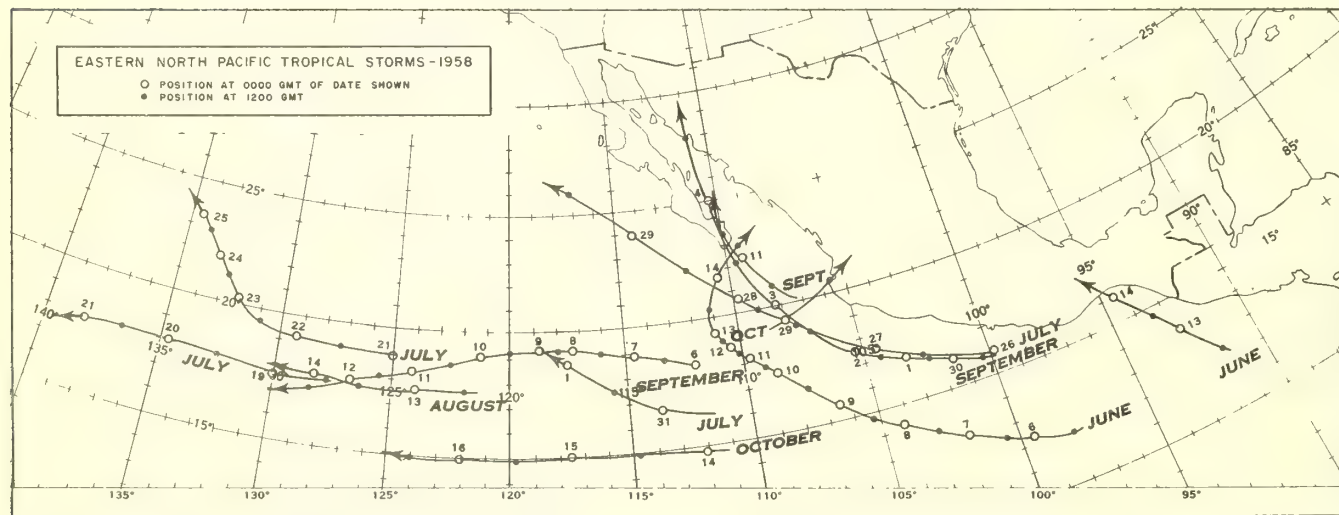
HURRICANES AND TROPICAL DISTURBANCES

EASTERN NORTH PACIFIC

Storm Number	Date	Area where first reported	Coast lines crossed	Highest wind speed reported	Lowest pressure reported*	Place of dissipation reported	Intensity	Remarks
I	1958 June 5-14	Near 12°North 97°West	None	60 knots, June 9	992 mb. June 7	Near 23°N. 109°W.	Hurricane	
II	June 12-14	Near 12°North 92°West	Tehuantepec	40 knots, June 12	1000 mb. June 12	Near Tehuantepec	Tropical Storm	Heavy damage to Mexican fishing vessels vicinity Gulf of Tehuantepec
III	July 18-21	Near 18°North 128°West	None	45 knots, July 18	1002 mb. July 18	Near 18°N. 138°W.	Hurricane	
IV	July 21-25	Near 19°North 125°West	None	65 knots, July 22 (reconnaissance flight)	1005 mb. July 21	Near 24°N. 135°W.	Hurricane	
V	July 26-29	Near 17°North 102°West	None	55 knots, July 27	998 mb. July 26	Near 26°N. 117°W.	Tropical Storm	
VI	July 30-Aug. 1	Near 16°North 112°West	None	45 knots, July 30	1004 mb. July 30	Near 19°N. 117.5°W.	Tropical Storm	
VII	Aug. 12-14	Near 18°North 121°West	None	45 knots, Aug. 12	1006 mb. Aug. 12	Near 18°N. 130°W.	Tropical Storm	
VIII	Sept. 6-12	Near 18°North 112°West	None	130 knots, Sept. 7	982 mb. Sept. 7	Near 17°N. 130°W.	Hurricane	Tuna Clipper COURAGEOUS badly damaged
IX	Sept. 10-11	Near 20°North 108°West	Southern tip Baja Calif.	40 knots, Sept. 10	1003 mb. Sept. 10	Near 25°N. 110°W.	Tropical Storm	
X	Sept. 29-Oct. 4	Near 16°North 100°West	Near Guaymas, Mexico	90 knots, Oct. 4	960 mb. Oct. 3	Inland, north of Guaymas, Mexico	Hurricane	Town of San Jose Del Cabo, Baja, Calif. virtually wiped out.
XI	Oct. 14-16	Near 15°North 112°West	None	44 knots, Oct. 14	996 mb. Oct. 14	Near 15°N. 124°W.	Tropical Storm	
XII	Oct. 29-30	Near 19°North 108°West	Near Cape Corrientes Mexico	47 knots, Oct. 29	1003 mb. Oct. 29	Inland near Cape Corrientes Mexico	Tropical Storm	

* Lowest pressure reported are actual values and not estimates of central pressure.

Tracks of Eastern North Pacific Storms, 1958.



TROPICAL STORMS OF THE CENTRAL NORTH PACIFIC — 1958

Prepared by the U.S. Weather Bureau
Honolulu, Hawaii

Only two storms formed in the Central North Pacific (i.e., in the area between 140°W. and 160°E.) during the year 1958. One of these storms was named JUNE. The other storm, unnamed, occurred on August 7-8 and passed sufficiently close to the Hawaiian Islands to do considerable damage.

TROPICAL STORM OF AUGUST 7-8

Little is actually known of the time, location, or manner of formation of this storm which formed over the ocean east-southeast of Hawaii, an area in which reports are almost entirely lacking. First positive evidence of the storm's existence came at about 1000 G.M.T. on August 7 when winds at Hilo Airport increased sharply.

The track shown in the accompanying chart begins as the storm came into the Hawaiian Island observational network. The storm weakened rapidly after 0600 G.M.T. of August 8 and by 1800 G.M.T. there was no evidence of a closed circulation or unusually strong winds. Only one attempt at reconnaissance was made at about 2300 to 0100 G.M.T. August 7-8 but it was not possible to locate the center exactly or to "box" the storm.

A small aircraft crashed during the storm at Hilo Airport, with one fatality and two persons on board the craft hospitalized. Damage in the Hawaiian Islands was estimated at over \$150,000, with most of the damage resulting from strong winds on Hawaii.

The highest surface wind actually measured by a reporting station was 30 kt. with gusts to 45 kt. at Hilo, but this speed was certainly not representative of the highest wind within the system.

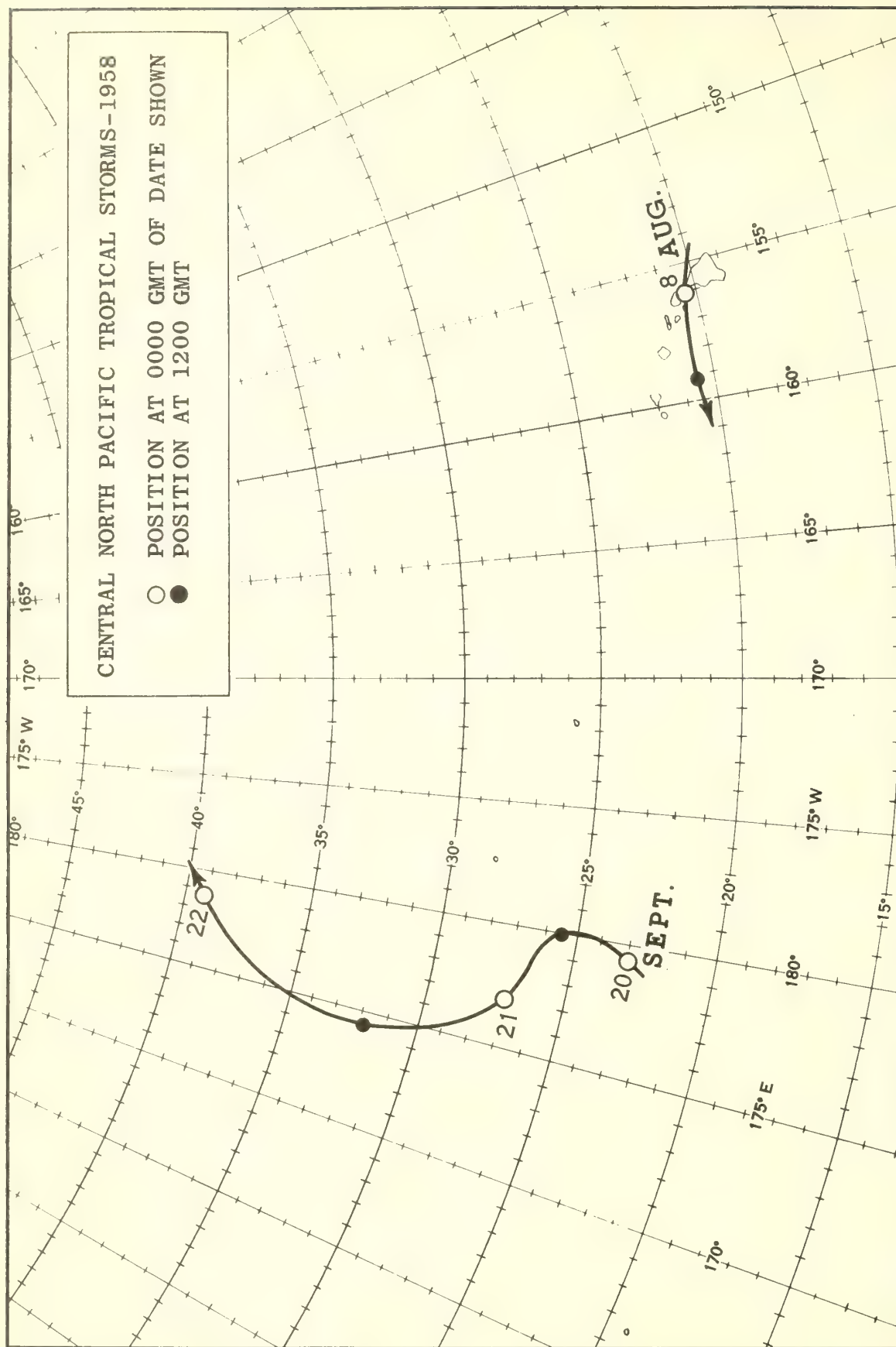
TROPICAL STORM JUNE OF SEPTEMBER 19-22

With the frequent traverse of the Wake-Honolulu track by aircraft, it is unlikely that this storm could have moved northward across the 20th parallel without being detected. On the other hand, the existence of the storm was established at 26°N. Thus the storm appears to have formed between 20°N. and 26°N. in the vicinity of the 180th meridian.

Highest winds actually reported were 60 kt., and there is no evidence that typhoon intensity was reached. A ship which sailed through the storm very near the center did not report an eye, but indicated very strong pressure gradients. The SS VALENTINE sailed through the storm near its center and reported a low pressure of 963.4 mb. (28.45 in.) and winds of 60kt. The barograph trace was typical of a ship that passed in the vicinity of the eye of a tropical storm.

The VALENTINE which sailed through the storm near its center at about 0300 G.M.T. on September 20 and an aircraft flight into the vicinity of the storm at about 0200 G.M.T. on September 21, together with sparse and scattered ship reports from the periphery of the storm, provide the only data available for use in establishing a track. This track based on these data is shown on the accompanying chart.

The track indicates a sharp turn toward the west-northwest at about 26°N. but, 12 hours thereafter, the storm came under the steering influence of southerly winds in advance of an eastward moving polar trough and began to move northward, then northeastward at an accelerated rate. It quickly weakened and disappeared after passing north of 40°N.



Tracks of Central North Pacific Storms, 1958

TYPHOONS AND TROPICAL STORMS OF THE WESTERN NORTH PACIFIC — 1958

Based on the Annual Typhoon Report, 1958,
Prepared by the U. S. Navy,
Fleet Weather Central, Guam

For the purposes of this summary, the western North Pacific is defined as the area extending from the east coast of the mainland of Asia eastward to 160°E. and from the equator northward to the pole. In this area during 1958 there were 19 typhoons, and 2 tropical storms that did not reach typhoon intensity (winds of 64 kt. or more). Not all of these 21 storms originated in the western North Pacific; but all are considered here from the time they were first detected, regardless of place of origin. These 21 storms represent all the typhoons and tropical storms detected anywhere in the area during 1958.

The movement of these storms is shown in the accompanying track charts, which are presented as a series of five successive composite charts, in chronological order. Pertinent information for each storm is summarized in the accompanying table. Additional information for each is given briefly in the succeeding paragraphs. In each instance the storm is identified by name and dates, with the dates applying to the typhoon period for those storms that reached typhoon intensity. All dates and times given are for the Greenwich meridian.

TYPHOON OPHELIA, JANUARY 6-17

The 1800 surface analysis of January 6 was the earliest indication of the tropical disturbance that later became OPHELIA. This analysis showed a tropical low, apparently passing to the south of Majuro. Very early on the 7th, Jaluit Atoll was struck by a small, intense typhoon. At 0443 on the 8th, aircraft reconnaissance located the eye of this typhoon about 155 mi. south-southwest of Kwajalein and reported surface winds to 150 kt. During the next 6 days OPHELIA continued her generally westward movement through the U. S. Trust Territory, causing considerable damage en route. She passed about 30 mi. north of Ponape, producing sustained surface wind speeds there of 40 kt., with gusts to 60 kt. She passed about 40 mi. north of Truk, producing sustained winds of 58 kt. and a minimum sea level pressure of 994.5 mb. (29.37 in.). At 1000 on the 13th, OPHELIA passed some 40 mi. south of Ulithi, which experienced sustained winds up to 72 kt. and minimum sea level pressure of 993.2 mb. (29.33 in.). At Yap, 22 mi. to the south of the storm path, the maximum sustained wind speed was 58 kt. at 2000 on the 13th while the minimum pressure was 982.4 mb. (29.01 in.) at 1900 on the 13th. OPHELIA entered the Philippine Sea and dissipated there. At her height, OPHELIA was an extremely intense storm, with violent turbulence. The latter is evidenced by aircraft reports and by the fact that the reconnaissance aircraft scheduled to make a fix at 1400 on the 14th was never heard from again after the aircraft commander had reported he was about to penetrate the eye.

TYPHOON PHYLLIS, MAY 25-JUNE 1

At 0000 on May 23, there was a small tropical circulation about 100 mi. south-southwest of Ponape. During the next 36 hr. this low moved west-northwestward meanwhile intensifying. Reports from the motor vessel BAKER, which was at Namoluk Atoll, indicated that PHYLLIS passed a short distance to the north at about 1500 on the 23d. At 0452 on the 25th, when the typhoon was about 50 mi.

south of Truk, aircraft reconnaissance reported that it had surface winds up to 95 kt. PHYLLIS continued on a west-northwest track and at about 0000 on May 26 passed over Pulusuk Atoll. On the three succeeding days, PHYLLIS moved first west-northwestward and then northwestward. On the 29th, now near 15°N., 141°E., she curved sharply toward the northeast, then followed a smoothly changing course as shown on the track map. She began to die out near 30°N., 145°E., on June 1. At 0608 on May 28, PHYLLIS was about 170 mi. from Guam, at her point of nearest approach. Maximum winds on Guam were 20 kt. (sustained) at 1054 on the 28th. At 1700 on the 31st, PHYLLIS passed 190 mi. to the east of Iwo Jima. There maximum winds were 25 kt. At Chi Chi Jima, with PHYLLIS 60 mi. to the east at 0100 on June 1, there were gusts to 35 kt.

TYPHOON RITA, JUNE 9-12

On June 7, aircraft reconnaissance located a closed 700 mb. circulation near 8°N., 150°E. Surface winds were light. Again on the 8th, aircraft located the closed 700 mb. low, but surface winds were still light despite some cumulus build-up. On the 9th, a weak circulation was suspected to the south of the original suspect area and at 0115 on the 9th, aircraft located such a circulation about 260 mi. west-southwest of Guam with surface winds reported to 70 kt. This was typhoon RITA, which during the next 3 days followed a smoothly curving path; northwest-north-northeast. RITA never became a very intense typhoon and was rapidly dying out in the vicinity of 30°N., 140°E., late on the 12th.

TYPHOON SUSAN, JUNE 14-16

SUSAN was originally identified from analysis of the surface map for 1800 on June 11 as a weak tropical low located between Truk and Ponape. Thereafter, the disturbance drifted past Truk and was located by aircraft reconnaissance 120 mi. southeast of Guam at 0400 on the 13th, at which time maximum surface winds were reported as 30 kt. At about 1030 on the 13th, the depression passed over northernmost Guam and gave a low surface sea level pressure of 1003.4 mb. (29.63 in.). During this passage the wind progression on Guam was north-northeast, north-northwest, calm, south-southwest, south with maximum sustained speeds of 13 kt. Later, at 2200 on the 13th, the storm increased to typhoon intensity, and this intensity was maintained until the storm lay 70 mi. east of Iwo Jima. At this time Iwo Jima winds backed from northeast to northwest with maximum reported sustained speeds of 25 kt. Shortly thereafter rapid dissipation set in.

TYPHOON TESS, JULY 2-4

As early as June 26, surface analyses indicated lower than normal sea level pressures in the area between Truk and Majuro. Analysis of the 1200 surface chart for the 27th showed a weak tropical low about 240 mi. southeast of Ponape. At 2043 on the 27th, aircraft located this depression at 4.0°N., 158.7°E. During the succeeding days, the storm moved in a general northwesterly direction,

TYPHOONS AND TROPICAL STORMS OF THE WESTERN NORTH PACIFIC — 1958

passing well to the north of Guam and giving there, at 0600 on the 1st, a low sea level pressure of 1005.9 mb. (29.70 in.) with sustained wind speeds of 18 kt. from the north. The storm reached typhoon intensity about 225 mi. northwest of Guam, early on July 2. By July 4, however, it had begun to dissipate rapidly.

TYPHOON VIOLA, JULY 9-13

Though there were indications as early as July 4 that a tropical depression might be forming south of Guam, it was not until the 8th that aircraft reconnaissance located a closed circulation, southeast of Guam, with surface winds of 30 to 50 kt. At 1955 on the 8th, the CPS radar on Guam showed the storm bearing 160° true, range 73.9 mi. Continued radar tracking showed that the storm was closest to Guam at 0104 on the 9th, when the bearing was 211° true, range 43.9 mi. Aircraft reconnaissance at 0223 on the 9th reported surface winds to 80 kt. Thereafter, VIOLA moved in a northwesterly direction until recurvature began, at about 20°N. VIOLA passed about 70 mi. west of Iwo Jima at 1900 on the 11th and gave maximum winds there of 55 kt. with gusts to 78 kt. By 1200 on the 13th, having recurved and moved in a northeasterly direction, VIOLA began to dissipate.

TYPHOON WINNIE, JULY 12-16

The 1200 surface chart analysis on July 8 indicated a weak tropical low just south of Guam. The depression was followed from surface analysis and reports from itinerant aircraft until, at 0100 on the 12th, reconnaissance aircraft penetrated the storm and reported maximum surface winds of 130 kt. Thereafter, throughout its entire history, WINNIE moved in a general west-northwesterly direction. She crossed Taiwan at about 1300 on July 15, causing heavy damage there, then moved on to the coast of China, where dissipation was rapid.

TYPHOON ALICE, JULY 14-23

Early on July 13, VIOLA was rapidly dissipating about 450 mi. east-southeast of Tokyo and WINNIE was centered about 420 mi. east-northeast of northern Luzon. At the same time, surface analysis indicated a weak tropical low near 7°N., 148°E. Aircraft reconnaissance verified the existence of this low, which was checked by aircraft periodically. Late on the 14th, aircraft penetrating the eye of the storm reported it as being circular, 40 mi. in diameter, with winds to 100 kt. at the surface. At this time the storm was located almost due west of Guam, at a distance of about 280 mi. The typhoon moved north-northwestward, then northward, then north-northeastward, and crossed the coast of Honshu very early on the 23d. Though the storm was already beginning to weaken, it caused great damage and loss of life in Japan. It died out shortly after crossing Honshu.

TROPICAL STORM BETTY, JULY 13-16

On July 13, while WINNIE was located some 400 mi. east of the northern tip of Luzon, surface analyses indicated a weak tropical low in the South China Sea. At first this low moved irregularly south-eastward and intensified slowly. During the 15th, it moved rapidly northeastward and at 2345 on July

15 was found by aircraft reconnaissance to be in an advanced state of dissipation. According to numerous surface ship reports, BETTY's surface winds at no time reached typhoon intensity.

TYPHOON DORIS, JULY 23-29

On July 20 and 21, surface map analyses indicated an intensifying tropical low about 200 mi. west-southwest of Eniwetok. At 0524 on the 22d, weather reconnaissance aircraft located a closed low near 10°N., 159°E. At 0900 on July 22, the surface wind at Eniwetok was east-southeast, 25 kt. Early the following day, it was established that the storm carried winds of typhoon intensity. At this time DORIS was centered some 600 mi. east of Guam. Thereafter, she moved in a general northwesterly direction, passing about 280 mi. northeast of Guam at approximately 1200 on the 24th. Guam winds at this time were north-northwest, 5 kt. Later, at 0000 on July 26, she passed about 125 mi. southwest of Iwo Jima, where the winds were due east at 40 kt. Recurvature, rapid deceleration, and weakening occurred on the 27th and 28th. By very early on the 29th, DORIS had lost its typhoon strength.

TYPHOON ELSIE, AUGUST 6-8

On August 4, an intensifying low was centered about 450 mi. west-northwest of Marcus Island. Early on the 5th, Marcus was reporting southerly winds of 30 kt. and a steadily falling barometer. Later on the same day, aircraft reconnaissance penetrated the eye of a storm located 60 mi. west-southwest of Marcus. The eye was reported as being circular, 10 mi. in diameter, with a wall cloud forming along the east and southeast. The storm intensified slowly, meanwhile moving in a general north-northeasterly direction. As she moved into higher latitudes, ELSIE accelerated and near 44°N., had definitely weakened and was dying out, having lost her tropical character.

TYPHOON FLOSSIE, AUGUST 22-25

As early as August 18, analysis showed a weak, nearly stationary low near 10°N., 140°E. On the 20th this low moved slowly northwestward, and early on the 21st was reported as having a center 30 mi. in diameter, with wall clouds on the north only, and with surface winds to 30 kt. Early on the 22d, aircraft reconnaissance reported surface winds to 120 kt. After moving first northward and then north-northeastward, FLOSSIE crossed the Japanese Coast at 33.6°N., 135.4°E., at about 0930 on August 25. At 0900 on the 25th, the weather station at Sheonomisaki, on the coast of Japan within a few miles of the storm center, reported southerly winds at 60 kt. Although she weakened rapidly as she moved inland, FLOSSIE caused heavy damage in Japan.

TYPHOON GRACE, AUGUST 29-SEPTEMBER 4

On August 27, a tropical low lay near 9°N., 147°E., according to surface analyses. On the 28th, reports from Truk and other evidence indicated this low was intensifying. Early on the 29th, aircraft reconnaissance located a closed circulation 160 mi. due south of Guam with surface winds of 50 kt. in all quadrants. Thereafter, the storm intensified to typhoon strength and for the re-

TYPHOONS AND TROPICAL STORMS OF THE WESTERN NORTH PACIFIC — 1958

mainder of August moved in a general west-northwesterly direction. From September 1 onward, GRACE moved in a general northwesterly direction, passing within 50 mi. of the northern tip of Taiwan at about 1600 on September 3 and causing winds to 40 kt. on the northern part of that island. After entering mainland China near 27°N., at 0300 on the 4th, GRACE decreased markedly in intensity.

TYPHOON HELEN, SEPTEMBER 9-18

Late on September 6, surface analyses indicated a weak tropical low near 9°N., 146°E. Throughout the 7th this low drifted slowly west-northwestward. At 0600 on the 8th, its presence was confirmed by aircraft reconnaissance, which located the depression some 180 mi. southwest of Guam. At this time the low was moving at about 10 kt. in a westerly to west-northwesterly direction. Late on September 9, reconnaissance reported surface winds of 75 kt. Helen was moving west-southwestward to northwestward and this movement continued until the 11th and was accompanied by intensification. Helen recurved gently between 20° and 25°N., between 1200 on the 12th and 1200 on the 15th. Thereafter, she moved in a general northeasterly direction, barely passed over coastal portions of central Honshu, and continued northeastward past northern Japan, dying out in higher latitudes. Conditions at coastal stations as HELEN passed nearby were as follows: At about 1800 on the 14th, HELEN passed 120 mi. to the east of Okinawa, and winds of 35 kt. (sustained) from the north-northeast were reported from Naha. At about 0300 on September 15, she passed 30 to 40 mi. to the west of Miniamibogari Jima, which reported winds of 80 kt., from the south-southwest. At about 2100 on the 17th, as HELEN crossed part of the Japanese coast, stations there reported winds of 50 to 60 kt.

TYPHOON IDA, SEPTEMBER 20-26

There were two striking features of IDA's history. First, her intensification was exceedingly rapid. Second, she was not only the most intense typhoon of the year, but almost certainly one of the most intense ever experienced anywhere for which there are barometric and wind speed measurements. Even allowing for observational errors, both the surface pressure and the height of the 700 mb. surface were extraordinarily low, and wind speeds were extremely high, when the typhoon was most intense. Values reported by aircraft reconnaissance were a minimum surface pressure of 873 mb. (25.78 in.)*, minimum 700 mb. height of 6,580 ft., and maximum surface winds of "225 kt. and more". First indications of IDA appeared on the 0600 surface analysis chart for September 20, when a tropical depression was located about 100 mi. east of Guam. At about 1800 on the 20th, she passed some 30 mi. south of Guam and was by this time of tropical storm intensity. Later on the 20th, aircraft reconnaissance located the center 30 to 40 mi. west of Guam and reported that she carried surface winds of up to 100 kt. Thereafter, her movement was westward to west-southwestward until September 22, when she turned northwestward. She then moved north-northwestward, northward, and north-northeastward, and crossed the east coast of Honshu late on the 26th. Though she already was weakening at this time, she caused widespread damage. IDA dissipated soon thereafter.

TYPHOON KATHY, OCTOBER 23-25

KATHY began as a tropical depression about 300 mi. to the east of Samar early on October 21. She passed westward across the Philippine Islands as a tropical storm, on the 21st and 22d. She then turned northwestward and on the 23d and 24th moved through the China Sea as a well-defined typhoon. On October 25 it turned sharply southward, began to weaken rapidly, and dissipated off the coast of Viet Nam near 10°N.

TYPHOONS LORNA, OCTOBER 24-NOVEMBER 2 and MARIE, OCTOBER 26-NOVEMBER 3

On October 20, surface analyses showed two weak tropical lows. One lay west-northwest of Truk; the other, in the Kwajalein-Majuro area. The one in the vicinity of Truk appeared to be drifting slowly northwestward; that near Kwajalein appeared to be quasi-stationary. By the 24th, the low that had started in the vicinity of Truk had reached typhoon intensity and was located near 13°N., 140°E. This was LORNA, and it continued westward toward the Philippines, though with decreased wind speeds from the middle of the 25th to the 28th of October.

Meanwhile, the low near Kwajalein had begun to drift westward and by the 24th it lay to the west of Eniwetok. Early on the 26th, aircraft reconnaissance fixed this storm near 15°N., 156°E., with reported surface winds of 85 kt. This was typhoon MARIE. From the middle of the 26th through the 27th, MARIE was almost stationary. As judged from aircraft reconnaissance, her center appeared to describe a small loop. Then on the 28th MARIE moved northward and continued on this path until late on the 29th, when she turned almost due west. Westward movement continued until November 1, when she curved northward near 22°N., 148°E.

While this was happening, LORNA intensified rapidly on the 28th and turned sharply north-northeastward on the 29th. Throughout the 1st of November, the centers of LORNA and MARIE were within 700 mi. of each other. Both were weakening, but LORNA began to be dominated by the more powerful MARIE and therefore LORNA weakened more rapidly than MARIE. Thereafter, both storms moved in a general northeasterly direction, with LORNA in the wake of MARIE. By the afternoon of November 2, both storms had decreased to less than typhoon intensity.

TYPHOON NANCY, NOVEMBER 22-26

On November 19, surface analyses indicated a weak tropical low near Yap. By the 21st, a well marked tropical depression had developed and this was moving in a northwesterly direction near 12°N., 132°E. By late on the 22d, with further intensification, the storm had reached typhoon intensity; and by the 23d typhoon NANCY had curved still more and was moving northward about 450 mi. to the east of Luzon. On the 24th and 25th, the general direction of movement was northeast. By November 26, now moving east-northeastward, NANCY had lost her typhoon winds and was dissipating rapidly.

TYPHOON OLGA, DECEMBER 2-7

From November 24 to November 30, there was evidence of a weak tropical low somewhere in the Kwajalein-Majuro-Tarawa area. By the latter part

*Editor's Note: This sea level pressure - 93 - was obtained by dropsonde. If authenticated it will be a record low. The established record is 887 mb. (26.185 in.)

recorded aboard the Dutch vessel SS SAPOEROEA on August 18, 1927, in a typhoon 460 mi. east of Luzon.

TYPHOONS AND TROPICAL STORMS OF THE WESTERN NORTH PACIFIC — 1958

of December 1, this low appeared to be well defined and to be moving west-northwestward to the south-east of Eniwetok. At about 1200 on the 2d, the storm passed due south of Eniwetok, which reported easterly winds of 40 kt. Later on the 2d, aircraft reconnaissance reported surface winds of 85 kt. From the 3d until the middle of the 5th, OLGA moved in a west-northwesterly to northwesterly direction. About the middle of the 5th, she recurved sharply toward the northeast, and with further recurvature on the 6th, began to move eastward, meanwhile lessening in intensity. By the end of the 7th, OLGA had decreased to less than typhoon intensity and was located near 27°N., 161°E.

TROPICAL STORM PAMELA, NOV. 30-DEC. 4

On November 25, surface analyses indicated a weak tropical low in the Ulithi-Yap-Koror area. For the next 3 days, this low intensified slowly, but showed no marked movement. On the 28th, no definite circulation was found by aircraft reconnaissance, but surface observations continued to show a strengthening low, and at 0130 on the 30th reconnaissance located the eye of a storm some 400 mi. northwest of Guam, with reported surface winds to 45 kt. Throughout the remainder of the 30th and on December 1, PAMELA moved erratically, with her eye apparently describing a loop. On the 2d and 3d, PAMELA moved westward, and thereafter died out in the vicinity of 17°N., 133°E.

Name	Dates during Period of Typhoon Winds (GMT)	Islands and Coasts Seriously Affected	Values and Dates (GMT) of:		
			Highest Surface Windspeed ¹ (kt.)	Lowest Surface Pressure ¹ (mb.)	Lowest 700 mb; Height ¹ (ft.)
OPHELIA	1/6-15	Jaluit, Ponape, Hall Islands, Truk	200/12	941/14	8470/14
PHYLLIS	5/25-6/1	Namoluk, Pulusuk	200/27	920/30	8430/28
RITA	6/9-12		100/11	982/10	9950/11
SUSAN	6/14-16		120/15	976/15	9700/15
TESS	7/2-4		75/3	993/2	10120/2-3
VIOLA	7/9-13		150/11	964/11	9400/12
WINNIE	7/12-16	N. Philippines, Taiwan	150/14-15	918/13	7980/13
ALICE	7/14-23	Honshu	150/18	920/19	8030/19
BETTY	(7/13-16) ²		Under 64 ³	982/15	
DORIS	7/23-29		180/26	932/26	8360/26
ELSIE	8/6-8		175/7	967/7	9240/8
FLOSSIE	8/22-25	Honshu	120/22	944/23	9290/23
GRACE	8/29-9/4	Sakishima, China	200/31-1	903/1	7360/31
HELEN	9/9-18	Honshu	200/14	919/12	7960/13
IDA	9/20-26	Honshu	225/23	873/23	6580/24
KATHY	10/23-25	Philippines	120/23	978/23	9540/23
LORNA	10/24-11/2		130/20	941/30	8480/30
MARIE	10/26-11/3		135/1	938/27	8480/28
NANCY	11/22-26		160/24	914/22	7930/24
OLGA	12/2-7		175/6	945/5	8660/5
PAMELA	(11/30-12/4) ²		Under 64 ³	995/1	10160/1

¹ Values reported by reconnaissance aircraft.

² Dates of tropical storm.

³ Windspeed estimates based on surface data and analysis.

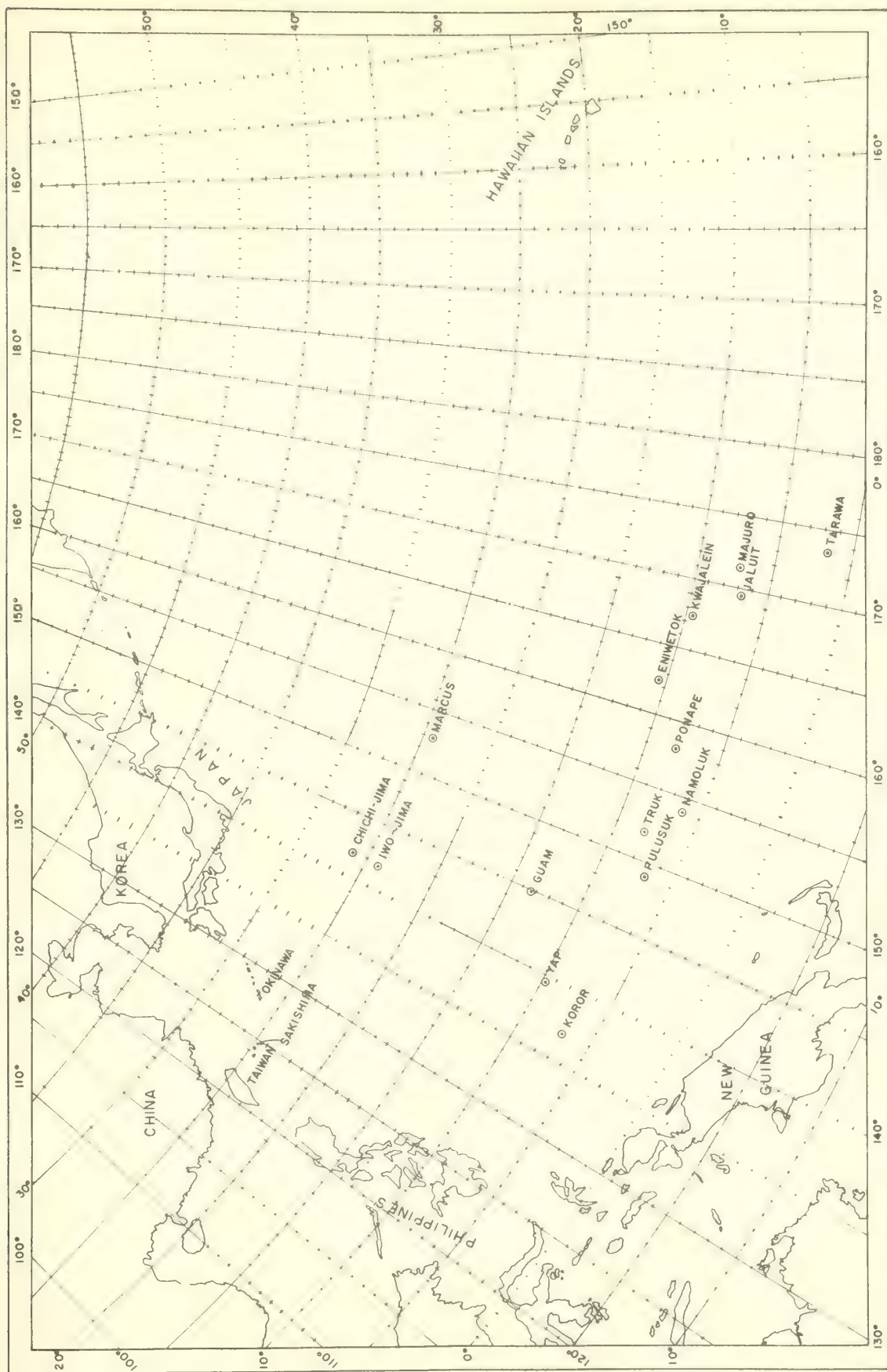


Figure 1. Station Location Chart.

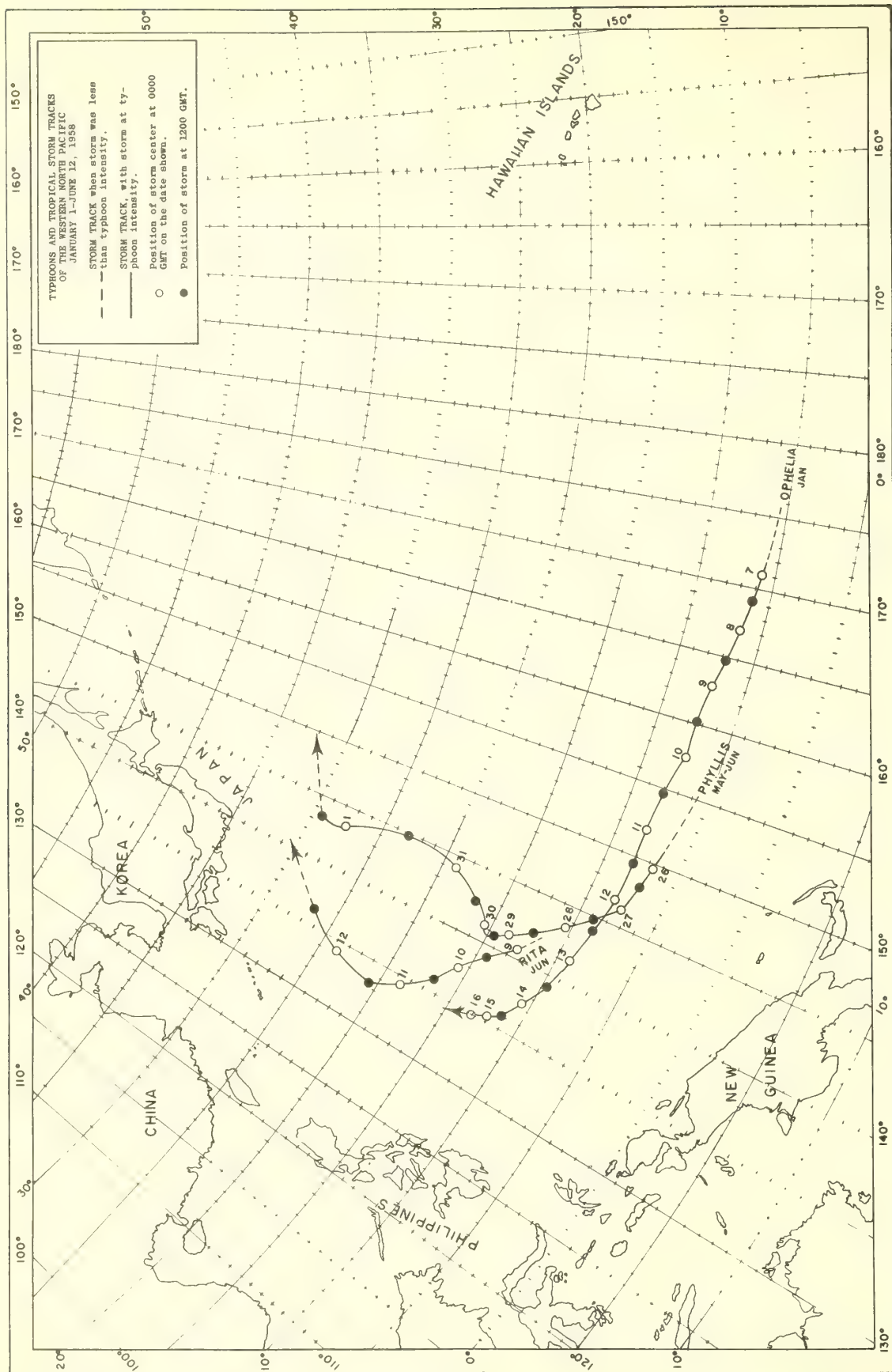


Figure 2. Typhoons and Tropical Storm Tracks January 1-June 12, 1958.

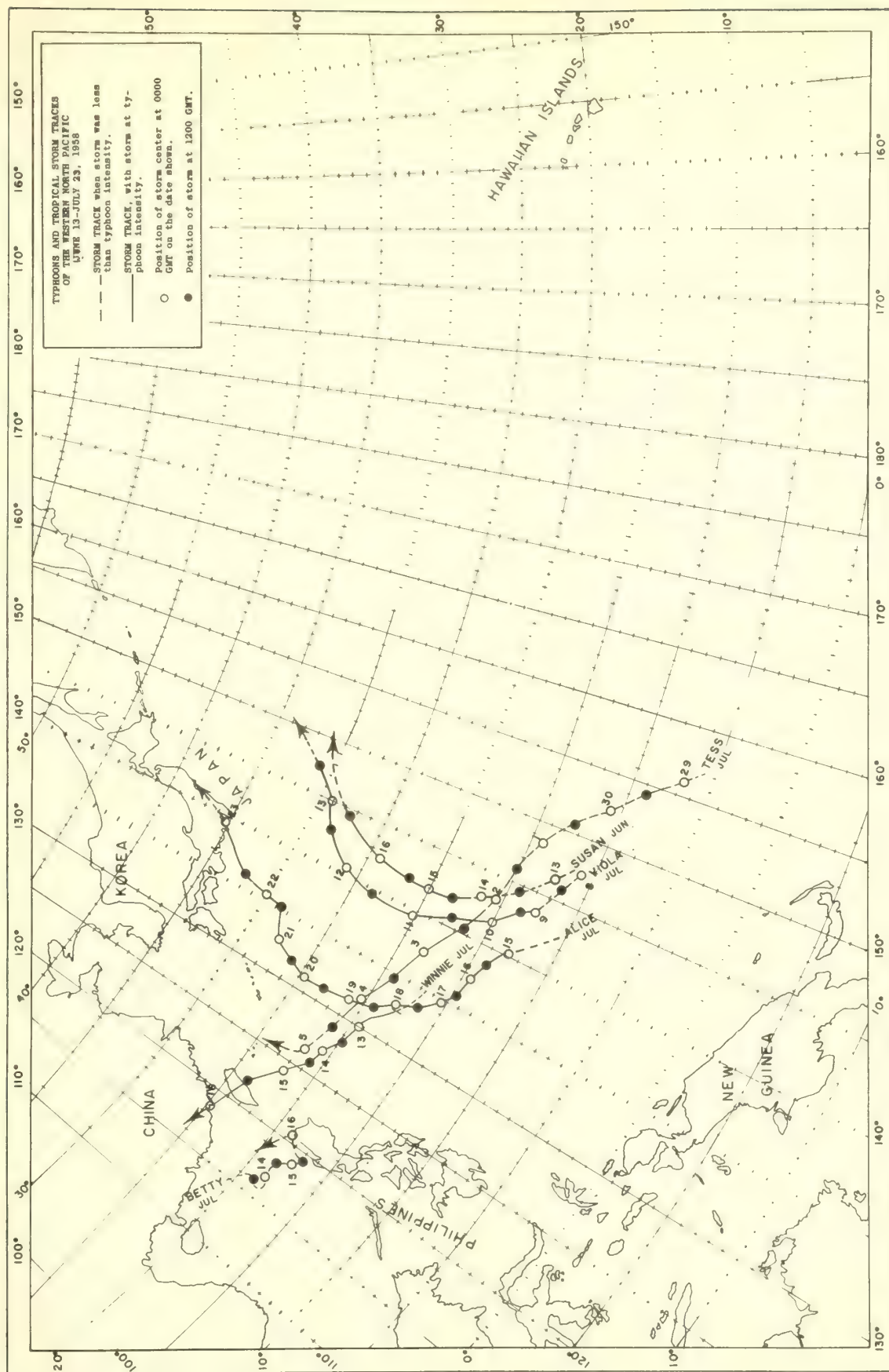


Figure 3. Typhoons and Tropical Storm Tracks June 13-July 23, 1958.

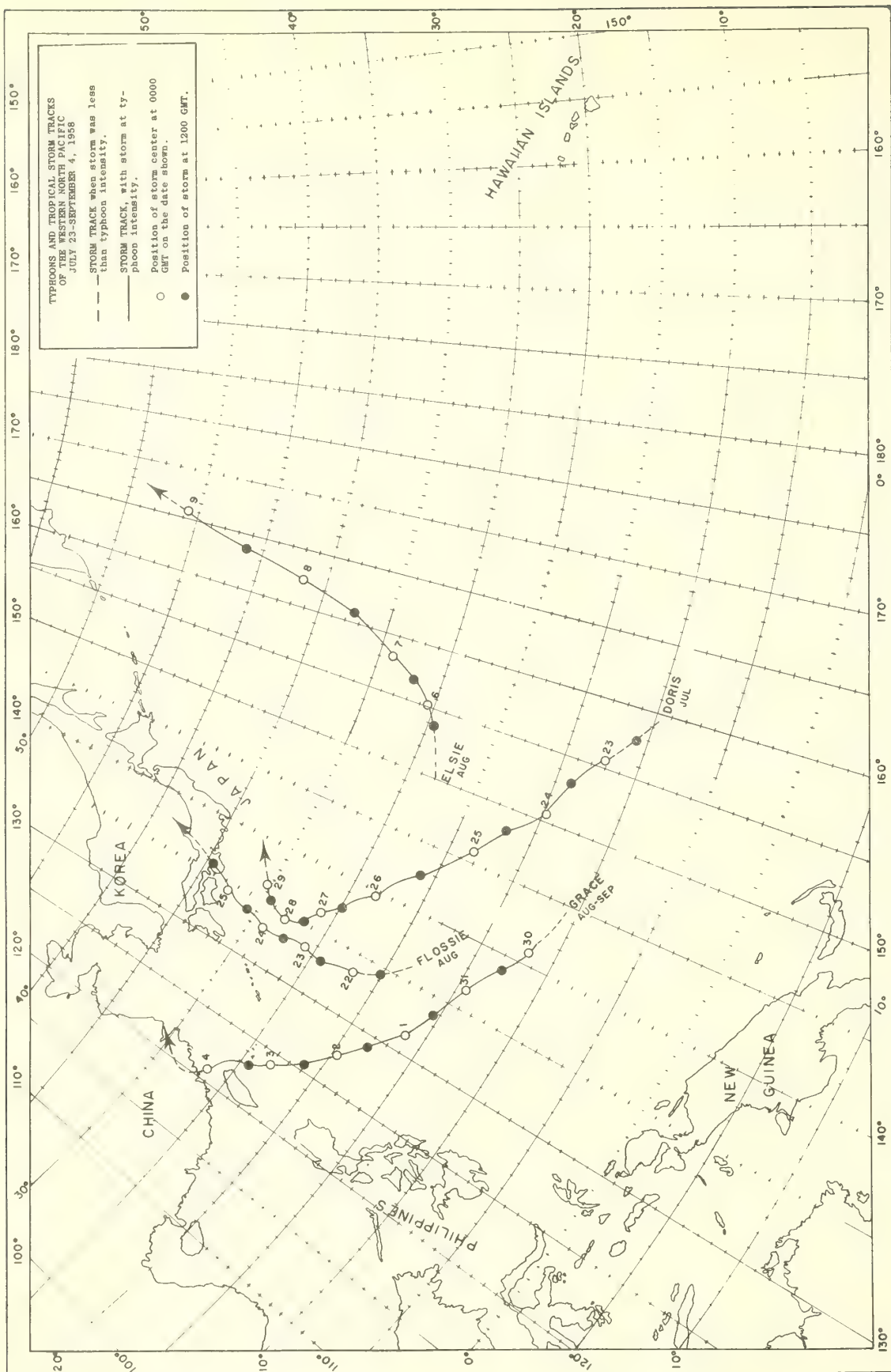


Figure 4. Typhoons and Tropical Storm Tracks July 23-September 4, 1958.

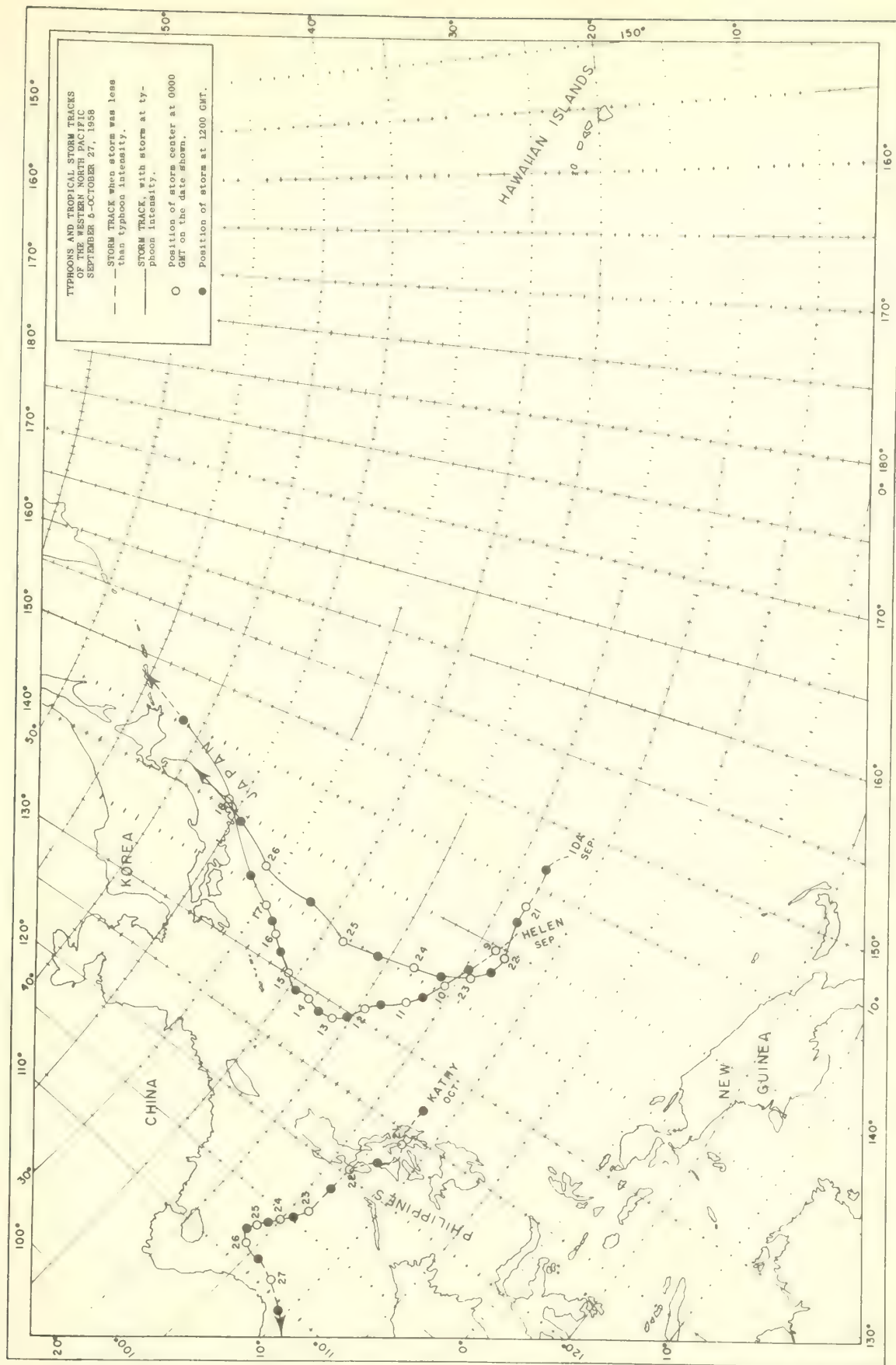


Figure 5. Typhoons and Tropical Storm Tracks September 5-October 27, 1958.

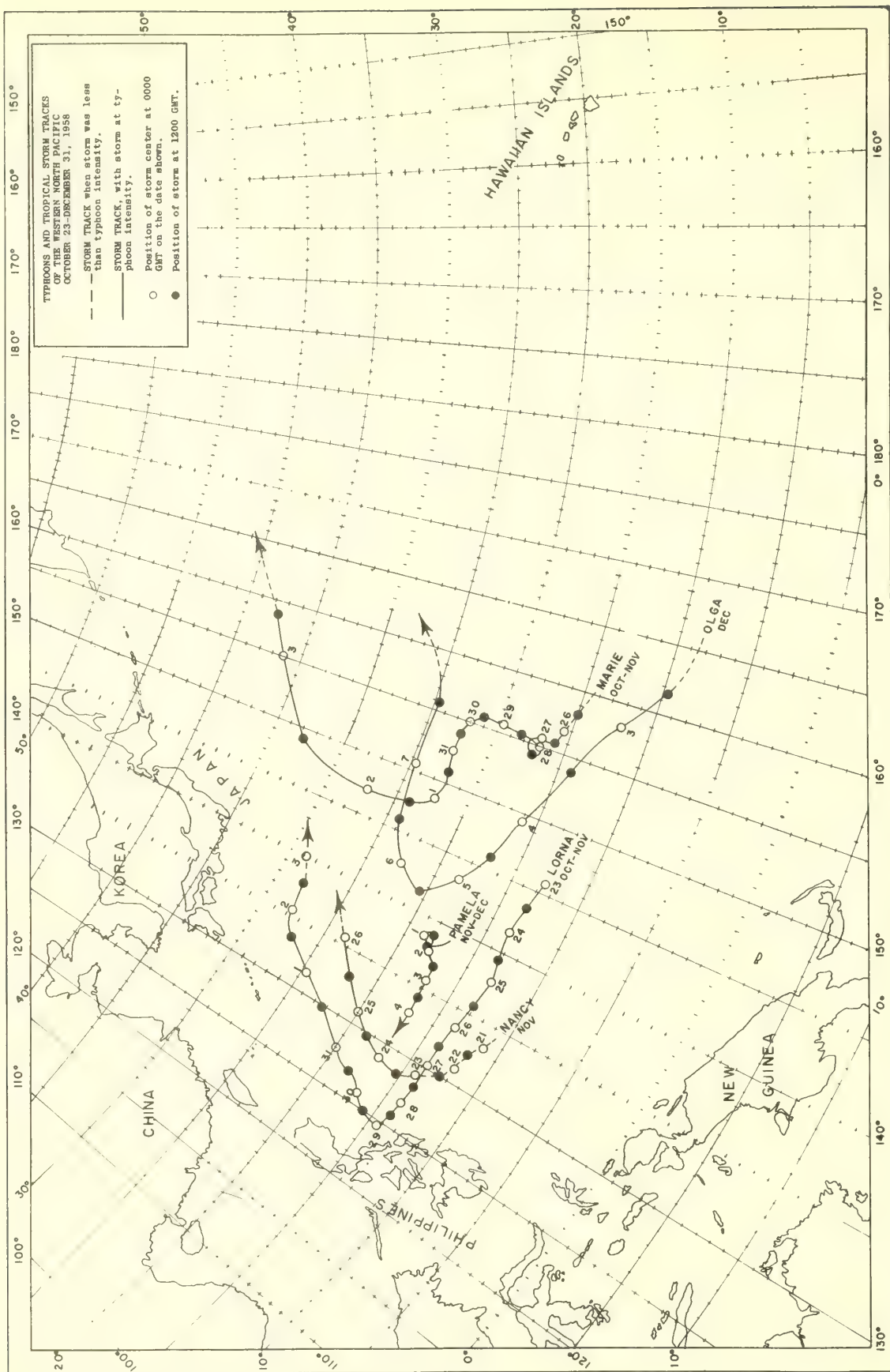


Figure 6. Typhoons and Tropical Storm Tracks October 23-December 31, 1958.

GENERAL SUMMARY OF FLOOD LOSSES FOR 1957

Monetary losses from floods in the United States during 1957, estimated at \$360,302,700, was the fourth greatest flood loss in 55 years of record. It was exceeded only in the years 1955, 1951, and 1937. In comparison with the national average of \$275 million based on the 10-year period 1942-1951, it was 1.3 times larger. The total loss of life this year was 82 compared to 302 in 1955, 51 in 1951, and 142 in 1937. It was slightly smaller than the national average of 86 lives lost during the last 33 years (1925-1957). The savings resulting from the flood forecasting and warning service was, as compiled from fragmentary information, approximately \$15,500,000 -- this figure represents only 15 percent of the river systems

where flooding occurred during the year.

The most important floods of the year were those that occurred during April to June in Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Texas. Major floods occurred on all of the rivers in those states flowing into the Mississippi River and Gulf of Mexico. The most extensive flood damage was along the lower reaches of the Arkansas, White, Ouachita, Red, and Washita, the upper Sabine, Trinity, Brazos, middle and lower Colorado, Guadalupe, Nueces, and the middle Rio Grande. Several of the streams had six major flood peaks or more during this period. The lower reaches of the White, Arkansas, Red, Trinity, and Brazos were in flood from 30 to over 60 days.

ESTIMATED FLOOD LOSSES FOR 1957 (Property Losses in thousands of dollars)

River and drainage	Urban Property				Rural Property				Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost	
	Residential		Commercial		Public	Crops		Livestock	Other						
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable					
Missouri Basin--Cont'd.															
Wakarusa River and Stranger Creek.....	4.0	1.0	3.0	2.0	8.5	272.5	.....	.....	2.0	0.3	.....	.....	.....	A 293.5	...
Marais des Cygnes and Osage Rivers.....	.....	.....	.....	.....	.....	35.0	4.0	.....	.....	.....	.....	.....	.....	A 39.0	...
Gasconade River and minor tributaries from Rulo, Nebr. to the mouth.....	6.5	23.6	15.0	35.0	50.0	3,210.0	2.1	.....	.....	.....	.....	.....	.....	A 30.0	...
Total.....	742.4	283.8	353.5	1,232.5	481.3	19,988.4	103.8	17.0	333.5	87.3	281.2	3.5	26,057.1	A 3,493.2	...
Ohio Basin															
Allegheny River and French Creek.....	111.2	12.7	5.8	7.8	9.8	0.1	.....	.....	0.2	.....	44.0	.....	.....	258.0	...
Monongahela, West Fork, Tygart and Cheat Rivers.....	96.5	56.1	63.5	157.5	87.6	5.3	.....	.....	30.1	0.1	259.9	.....	.....	806.0	...
Little Kanawha River.....	2.0	1.0	.....	.....	.....	.....	.....	.....	.....	.....	5.0	.....	.....	13.1	...
Kanawha River.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	810.0	...
Guyandot River.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,254.0	6
Tug Fork.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,566.0	...
Levisa Fork.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22,572.0	...
Licking and Little Miami Rivers.....	4.3	.....	.....	.....	.....	35.9	.....	.....	4,105.9	.....	.....	.....	.....	A 40.2	...
Kentucky River and tributaries.....	C 6,496.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A 11,761.2	5
Green River and tributaries.....	1,500.5	300.0	25.0	60.0	253.0	2,399.0	12.0	.....	112.0	31.0	.....	.....	.....	A 4,277.5	...
Cumberland River.....	2,349.0	400.0	100.0	200.0	69.0	62,117.0	.....	.....	13.0	26.0	.....	.....	.....	A 9,913.5	2
Holston, Clinch and Powell Rivers....	839.1	.....	1,200.0	402.5	169.0	.....	.....	.....	300.0	109.0	15.0	.....	.....	A 2,133.5	...
French Broad River and tributaries....	61.0	4.0	435.4	176.0	2.0	.....	.....	.....	4.0	.....	137.0	.....	.....	221.2	...
Tennessee River and minor tributaries.....	13.0	0.1	1.5	.....	3.1	.....	.....	.....	2.5	1.6	.....	.....	.....	.....	...
Ohio River.....	8.0	.....	3.0	18.5	5.0	405.0	0.5	0.5	.....	.....	5.2	.....	.....	32.9	...
Total.....	11,768.2	983.9	1,865.6	1,059.3	551.7	64,992.1	12.5	17.5	4,670.2	170.2	701.6	31,454.6	135,971.6	877.3	25
White Basin															
Flash flood in Greene County and North-Central Arkansas.....	300.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A 706.8	2
Black River and tributaries.....	.....	.....	.....	.....	.....	95.0	.....	.....	.....	.....	.....	.....	.....	A 3,117.0	...
Little Red River.....	11.0	.....	50.0	10.0	32.0	201.9	.....	2.4	27.0	11.2	76.0	2,946.0	.....	A 476.5	...
White River.....	.....	.....	.....	.....	9.0	288.8	.....	0.8	1.0	.....	7.5	1,437.0	.....	A 1,719.1	...
Total.....	311.0	.....	50.0	10.0	41.0	555.7	.....	3.2	28.0	11.2	116.5	4,714.8	.....	6,019.4	2
Arkansas Basin															
Chikaskia River and tributaries.....	15.0	10.0	10.0	10.0	.....	360.0	10.0	8.0	82.0	10.0	60.0	.....	.....	A 926.0	...
Salt Fork and tributaries.....	1.0	.....	.....	.....	.....	261.0	14.0	10.0	40.0	9.5	.....	.....	.....	A 606.5	...
Cimarron River.....	208.0	60.0	200.5	150.0	29.0	2,065.0	90.0	100.9	465.0	90.0	30.0	.....	.....	A 5,897.4	3
Verdigris River and tributaries.....	53.0	130.0	100.0	.....	620.0	1,160.0	651.0	101.0	110.0	28.0	203.5	.....	.....	A 3,556.5	...
Neosho River and tributaries.....	11.0	2.5	.....	.....	80.0	612.0	5.0	8.5	45.5	1.3	20.0	.....	.....	A 1,030.5	...
Illinois River.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A 74.4	...
North Canadian River.....	28.0	15.0	20.0	.....	1,674.0	719.0	.....	190.0	92.0	6.5	1,037.0	.....	.....	A 3,851.5	...
Poteau River.....	29.5	1.5	.....	.....	2,879.0	759.0	1.0	41.5	14.0	7.5	1,800.0	.....	.....	A 293.2	...
Arkansas River and minor tributaries	97.0	47.0	23.0	22.0	254.0	8,195.0	33.0	63.0	140.0	55.0	42.0	12,933.7	.....	A 22,201.2	...
Total.....	442.5	266.0	353.5	182.0	5,536.0	14,131.0	804.0	522.9	988.5	207.8	375.5	13,301.3	44,062.2	3	...
Red Basin															
Saline River.....	.....	.....	.....	.....	.....	60.0	.....	2.0	5.0	.....	.....	.....	.....	A 81.5	...
Quachita and Black Rivers.....	.....	.....	.....	.....	.....	163.0	.....	12.0	50.0	.....	20.7	.....	.....	A 369.0	...
Little River and tributaries.....	.....	.....	.....	.....	.....	27.0	.....	.....	.....	.....	.....	.....	.....	A 98.0	...
Sulphur River.....	.....	10.0	2.0	.....	10.0	.....	.....	.....	.....	.....	.....	.....	.....	A 10.0	...
Cypress River.....	.....	.....	.....	.....	1,277.0	7,779.0	30.0	1,367.0	694.0	.....	.....	.....	.....	A 14,377.0	6
Red River and minor tributaries.....	85.0	88.5	16.0	5.0	1,297.0	8,876.5	30.0	1,398.5	962.8	156.5	556.2	190.0	.....	A 16,037.5	6
Total.....	85.0	98.5	18.0	5.0	1,297.0	8,876.5	30.0	1,398.5	962.8	156.5	556.2	190.0	.....	A 16,037.5	6
Lower Mississippi Basin															
Little River.....	50.0	5.0	.....	10.0	.....	2,000.0	.....	.....	150.0	10.0	1,900.0	.....	.....	A 4,425.0	...
St. Francis River and tributaries....	.....	.....	.....	.....	.....	2,445.0	.....	.....	85.0	.....	2,525.0	.....	.....	A 5,263.0	...
Big Black and Yazoo Rivers and tributaries.....	76.0	.....	.....	.....	1,030.0	1,030.0	.....	.....	60.0	.....	.....	.....	.....	A 1,106.0	...
Mississippi River.....	25.0	10.0	20.0	15.0	200.0	3,841.0	2.5	.....	.....	15.0	222.5	.....	.....	A 4,814.5	...
Total.....	151.0	15.0	20.0	25.0	200.0	9,316.0	2.5	.....	295.0	25.0	4,647.5	25.0	.....	A 15,608.5	6

See reference notes at end of table

ESTIMATED FLOOD LOSSES FOR 1957 (Property losses in thousands of dollars)

River and drainage	Urban Property				Rural Property				Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost	
	Residential		Commercial		Public	Crops		Livestock	Other						
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable					RR's, bridges, Highways, etc.	Utilities
WEST GULF OF MEXICO DRAINAGE															
Sabine River.....	22.0	.....	.....	.....	108.5	530.0	1.3	207.5	31.0	10.0	125.0	.....	40.0	.....	1,075.3
Neches River.....	1.0	.....	.....	.....	1.0	39.0	.....	5.4	35.0	.....	16.0	.....	2.0	.....	A 104.4
Trinity River and tributaries.....	2,065.0	770.0	104.0	224.0	2,172.0	9,306.1	.....	753.6	863.0	94.0	2,353.4	.....	904.0	.....	A 19,736.7
Brazos River.....	2,070.0	180.0	450.0	90.0	6,233.9	29,646.3	213.1	2,739.5	800.0	40.0	1,965.1	.....	1,385.3	.....	A 45,951.3
Concho River.....	1,700.0	.....	.....	.....	510.0	.....	.....	.....	.....	.....	125.0	.....	.....	.....	3,340.8
Colorado River.....	2,703.0	.....	.....	.....	12.0	75.0	45.0	2.0	1.0	.....	75.0	.....	0.6	.....	A 240.8
Lavaca and Navidad Rivers.....	.....	.....	1.0	.....	12.0	142.5	.....	1.0	8.5	0.8	19.5	.....	53.1	.....	A 986.8
San Antonio River and tributaries.....	112.0	89.5	30.0	12.0	600.0	50.3	.....	3.4	14.0	5.0	53.0	.....	.....	.....	A 773.9
Guadalupe River and tributaries.....	21.8	.....	7.5	.....	36.5	605.3	.....	12.0	32.0	.....	5.8	.....	.....	.....	A 773.9
Nueces River and tributaries.....	12.0	22.0	1.0	.....	33.0	2.5	.....	.....	9.0	.....	229.0	.....	11.0	.....	A 320.5
Devils River.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	60.0	.....	.....	.....	60.0
Total.....	7,156.8	1,061.5	594.5	327.0	9,796.9	40,397.0	259.4	3,724.4	1,792.5	153.8	5,121.0	269.7	2,402.0	.....	73,056.5
GULF OF CALIFORNIA DRAINAGE															
Gunnison River and tributaries.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Green and White Rivers and tributaries.....	5.9	0.7	16.3	9.7	68.2	59.6	0.1	0.4	22.9	.....	68.8	4.6	129.1	.....	386.3
Colorado River and tributaries above Glenwood Springs, Colo.....	.....	.....	1.5	.....	2.7	125.0	5.0	.....	20.0	.....	.....	.....	4.0	15.5	173.7
Total.....	.....	.....	.....	.....	23.0	26.0	.....	.....	7.5	.....	119.8	.....	5.0	.....	181.3
PACIFIC SLOPE DRAINAGE															
Coastal Streams															
Russian River.....	5.9	0.7	17.8	9.7	93.9	210.6	5.1	0.4	50.4	.....	188.6	4.6	138.1	15.5	741.3
Eel River.....	3.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.0	.....	.....	.....	3.0
Total.....	3.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.0	.....	.....	.....	13.0
Columbia Basin															
Crab, Wilson and Goose Creeks areas of East-Central Washington.....	280.5	63.9	116.3	26.9	200.3	5.0	75.0	0.5	25.0	100.0	253.2	35.0	87.1	.....	1,268.7
Clearwater River and Tommy Taha and Lawver Creeks.....	.....	.....	.....	.....	250.0	.....	.....	.....	.....	.....	185.0	.....	.....	.....	535.0
Snake River and tributaries.....	E 7,500.0	.....	100.0	.....	.....	.....	.....	.....	.....	.....	2,500.0	.....	.....	.....	20,500.0
Willamette River.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.0	.....	.....	.....	13.0
Columbia River.....	10.0	350.0	.....	600.0	50.0	30.0	.....	.....	.....	.....	10.0	.....	15.5	.....	1,065.5
Total.....	7,790.5	413.9	5,216.3	626.9	500.3	35.0	75.0	0.5	25.0	100.0	2,963.2	35.0	102.6	5,500.0	23,384.2
GRAND TOTAL.....	30,375.2	3,643.0	10,416.4	4,154.4	19,135.6	165,488.9	1,319.3	5,769.9	10,287.2	1,720.3	37,317.9	3,472.6	57,286.1	9,915.9	360,302.7

A Coordinated with U. S. Engineers
 B Agricultural
 C Includes all Urban Property
 D Includes all Rural Property
 E Includes all Urban Residential Property
 F Includes all Urban Commercial Property

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

YEAR 1958

The most destructive floods during 1958 were the June floods in the Wabash and White River Basins in Indiana. The main damage occurred to crops as flood crests moved down the rivers, overflowing sections of populated cities, spreading out over crops, and destroying them, in most cases too late in the season for replanting. The \$48 million crop loss was probably the greatest of all time in this section of the country.

The flood that caused the greatest loss of life during 1958 was the flash-flood on the East Nishnabotna River in Iowa which claimed 19 lives. This was one of the most tragic floods in Iowa history and resulted from a series of thunderstorms which dumped over 12 inches of rain in a 3-hour period.

The flood on the Charles and Neponset Rivers in the Metropolitan Boston, Mass., area during January was the worst January flood ever experienced on these streams. This flood resulted from 7.08 inches of rain during the period from January 15 to 29. A total of 9.54 inches was recorded for the whole month, which is the greatest on record for Boston. The crest on the Charles River at Charles River Village, Mass., was the fourth highest of record. Several highways and many basements were flooded. Some bridges were closed but none destroyed. Flooding reported elsewhere during January was mostly light, except for serious local flooding southwest of Corpus Christi, Tex.

The most damaging floods during February occurred in the Sacramento Basin in California towards the end of the month. Property damages were estimated between \$6 and \$7 million. The upper Sacramento River reached its highest level since January 1943. Downstream from Red Bluff, Calif., the Sacramento reached its highest level since 1942. Three communities, Tehama, Hamilton City, and Grimes, were evacuated as a precautionary measure. The west side tributary streams of Stony and Cache Creeks reached record high stages. Other floods of importance were reported in the Nueces and Guadalupe River Basins in Texas. While flood waters did not exceed the alltime records, it was one of the larger floods in the Nueces Basin. Some 300 persons were evacuated because of high water. The flood in the lower portion of the Guadalupe, where the rain was the heaviest, was the second largest since records began, being exceeded only by the flood of July 1936.

There was considerable light to minor flooding during March, with very little property damage reported. Some county highways and bridges were damaged from local flash floods in central and southern Alabama.

Near-record to record stages were reached during April on the Russian and Pajaro Rivers and on tributaries of the northern San Joaquin River in California. These record to near-record crests were due to extremely heavy precipitation during the first week of April. In the Central Valley drainage, the precipitation during the first week of April exceeded that normally received during April, May, and June. Large sections of agricultural lands adjacent to all tributary streams were flooded. Several thousand persons were evacuated from their homes from widespread flooding on creeks in the San Francisco Bay area. Three deaths by drowning were reported. Severe floods developed in the East Gulf of Mexico drainage and in the Red Basin near the close of the month. A near record crest occurred on the Ouachita River in Arkansas. Major floods were developing on the

Little River in Arkansas and on the Sulphur and Cypress Rivers in Texas.

Severe flooding occurred in streams in southern Arkansas, northern Louisiana, Mississippi, and eastern Texas during May. Stages on several streams in this area reached record to near-record proportions. Many families in the flood area were forced from their homes. Serious flooding occurred in the headwaters of the Big Sandy River Basin in southwestern Virginia, eastern Kentucky, and southwestern West Virginia. Some of the highest stages in 10 to 18 years were reached on streams in eastern North Carolina, forcing several families from their homes. Flooding reported elsewhere was light to moderate.

The greatest summertime flood of record occurred in the Wabash and White River Basins in Indiana during June. The river levels were generally the highest since May 1943 and in some cases the highest since March 1913. A record crest was reached on the Mississinewa River at Marion, Indiana. The total damage was estimated at \$57 million, with about 1-1/4 million acres flooded. The Red Cross estimated that 2,000 homes were damaged by flood waters. Fourteen homes were completely destroyed and 54 others received major damage. Flash floods occurred along the creeks and rivers that head in the Edwards Plateau escarpment in Texas from the heavy rains accompanying tropical storm "Alma" as it moved inland south of Brownsville, Tex., on June 15. The stages on the Sabinal, Seco, Blanco, and upper Hondo were the highest in several years.

Major flooding occurred in several streams in Illinois, Missouri, Kansas, Iowa, and Nebraska during July. Record stages were exceeded on the lower Raccoon in Iowa, the Salt River at New London, Mo., and the Arkansas River at Great Bend, Arkansas. A severe flash flood on the East Nishnabotna in Iowa resulted in the loss of 19 lives and millions of dollars damage. Another flash flood in West Virginia took the lives of a mother and her six children as her home was swept away by the flood waters. The flooding on the Shenango River in Pennsylvania was the worst since 1913. The lower Missouri reached its highest level since 1951 in the reach below St. Joseph, Mo. A record crest occurred on the Knik River near Palmer, Alaska, on June 18. The high water was due to the release of water from Lake George, which broke through its ice barrier on June 16. Several families were forced to evacuate from their homes. The Alaskan Railroad and the Palmer Highway were damaged by the flood. Severe flooding occurred along several streams in eastern Puerto Rico on June 21 due to torrential rains. At Humacao and Arroyo, the rivers rose higher than during any previous flood. Heavy damage and 4 deaths resulted from these floods, with approximately 75 houses destroyed and 1,000 persons homeless.

The most damaging floods during August were the flash floods in the Ohio Basin in Charleston, W. Va., area. Water in the Kanawha Two Mile Creek Basin was reported 15 to 20 feet higher than in any previous flood. The Holly River, a tributary of the Elk River, reported its highest stage at Holly, W. Va., in 35 years. The Arkansas River reached a near record stage at Hutchinson, Kans., early in August.

Damaging floods occurred during September along the Rio Grande at Presidio, Tex., the Middle River in Iowa, and along the Republican in Kansas. The Rio Grande flood at Presidio was the worst since

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

YEAR 1958

1932 and was due to heavy flow from the flooding Rio Conchos in Mexico. Major damage resulted to the cotton crop which was practically a complete loss. The flooding on the Middle River was due to rain in excess of 12 inches occurring in the headwaters in an 8-hour period. Crop damage was heavy in the lowlands. Two dwellings were destroyed and 13 other houses were damaged in Casey, Iowa. The crests on the Republican River at Clay Center and Wakefield, Kans., were the second and third highest stages of record. There was considerable flash flooding from excessive rains in northeastern Texas.

The most important flooding during October and November was in southern Texas on the Rio Grande below Falcon Reservoir. Flooding was the most extensive on the Mexican side. Considerable farmland was flooded on the American side from Rio Grande City to above Mission, Tex. There are no levees along this reach of the river, and the small villages of Abrams and Los Ebanos were flooded and had to be evacuated. Flooding reported elsewhere was minor.

Flooding during December was very sparse and light and confined to the Carolinas, Virginia, and western Washington.

YEAR 1958

BROWNSVILLE, TEX. (1014 MB.)										BUFFALO, N. Y. (993 MB.)										BURROOD, LA. (1016 MB.)										CAPE HATTERAS, N. C. (1155 MB.)										CARIBOU, ME. (989 MB.)									
SURFACE	364	7	19.0	87	114	0.8	365	182	5.7	81	256	3.5	356	3	19.1	88	30	2.9	365	4	14.2	84	323	2.9	363	191	1.0	82	272	2.5																			
1,000--	364	124	20.1	86	143	4.3	365	123					356	138	19.3	81	52	2.9	365	131	14.5	77	313	4.1	363	105																							
950--	364	564	18.8	80	161	11.1	365	543	5.5	70	263	8.0	356	581	17.2	74	86	1.7	365	560	12.7	69	299	6.6	363	518	1.1	73	278	4.9																			
900--	363	1,031	17.2	70	168	11.7	365	985	3.5	66	274	11.3	356	1,040	15.3	67	223	1.7	365	1,017	10.6	65	280	8.7	363	953	-	71	292	7.6																			
850--	363	1,518	11.8	60	174	9.1	365	1,468	1.6	64	277	15.8	356	1,524	13.2	60	251	3.1	365	1,495	10.8	63	271	11.9	363	1,405	-	61	289	9.7																			
800--	363	2,031	13.0	54	187	6.4	365	1,935	-	51	280	16.1	356	2,032	10.8	54	258	6.2	365	1,992	6.5	56	269	15.0	361	1,891	-	3.3	63	286	11.5																		
750--	363	2,568	10.5	50	210	5.1	365	2,448	-	2.7	56	280	18.3	356	2,568	8.3	265	7.8	365	2,518	4.2		266	18.1	361	2,401	-	5.4	59	279	13.2																		
700--	363	3,143	7.3	47	235	6.0	365	2,994	-	5.0	51	280	20.6	356	3,136	5.5	271	9.7	364	3,079	1.6		266	20.6	361	2,940	-	7.7	55	276	15.9																		
650--	363	3,743	3.7	246	246	7.6	365	3,572	-	7.8	47	279	23.3	354	3,737	2.1	271	12.0	364	3,668	-	1.6	266	23.5	361	3,513	-	10.4	51	274	18.3																		
600--	363	4,395	-	3	253	9.5	365	4,193	-	11.0	45	279	26.4	354	4,381	-	1.6	268	14.4	364	4,307	-	5.0	266	26.4	360	4,127	-	13.6	47	272	20.4																	
550--	363	5,077	-	4.6	255	11.5	365	4,852	-	14.8	44	279	29.3	352	5,064	-	5.8	271	15.3	363	4,978	-	9.0	266	29.0	359	4,781	-	17.4	44	270	23.3																	
500--	363	5,839	-	9.7	260	11.5	365	5,493	-	19.3	37	277	32.3	349	5,693	-	10.8	267	17.9	363	5,603	-	18.8	266	32.3	358	5,408	-	27.8	37	267	29.4																	
450--	362	7,100	-	14.7	262	12.2	365	6,342	-	24.4		275	35.4	346	6,609	-	15.9	267	20.2	363	6,500	-	18.8	265	35.5	358	6,258	-	25.8	27	267	29.1																	
400--	361	7,519	-	20.7	262	11.3	365	7,198	-	30.2		273	38.3	345	7,491	-	22.0	269	20.8	363	7,379	-	24.9	266	38.5	356	7,102	-	32.8		266	32.8																	
350--	358	8,493	-	27.5			365	8,136	-	36.8		273	40.4	345	8,460	-	29.0			363	8,337	-	31.6	264	42.6	356	8,030	-	39.0		264	36.9																	
300--	357	9,584	-	35.6			365	9,187	-	44.0		273	44.5	342	9,545	-	37.1			363	9,412	-	39.3	264	47.6	354	9,072	-	45.1		262	39.4																	
250--	356	10,827	-	45.0			365	10,393	-	50.3		272	47.8	335	10,781	-	46.3			363	10,640	-	47.1	264	54.0	350	10,271	-	51.7		263	43.5																	
200--	351	12,285	-	55.3			364	11,837	-	53.8		273	50.3	324	12,233	-	55.6			363	12,090	-	54.9	267	56.0	344	11,712	-	53.2		265	44.7																	
150--	348	13,128	-	60.6			352	12,693	-	54.4		273	51.6	318	13,045	-	57.8			363	12,941	-	57.8	268	53.4	341	11,222	-	57.8		264	41.4																	
100--	345	14,078	-	65.2			359	13,680	-	54.9		274	51.2	309	14,029	-	64.1			357	13,905	-	60.1	269	48.0	334	13,568	-	53.1		265	39.6																	
125--	335	15,176	-	69.9			355	14,842	-	56.0		272	34.6	302	15,134	-	67.8			357	15,036	-	62.5	268	40.4	326	14,743	-	53.7		264	33.6																	
100--	315	16,494	-	72.6			351	16,257	-	56.8		272	28.0	289	16,468	-	69.7			356	16,408	-	63.6	268	30.9	317	16,176	-	54.1		266	28.2																	
80--	295	17,810	-	70.8			343	17,672	-	56.3		272	20.4	272	17,803	-	68.4			352	17,782	-	62.3	270	19.8	303	17,609	-	54.1		265	21.8																	
60--	287	19,545	-	64.0			333	19,504	-	55.1		274	13.0	257	19,551	-	63.0			351	19,575	-	58.7	274	7.2	288	19,457	-	53.5		269	16.5																	
40--	284	20,673	-	60.2			327	20,672	-	54.1		278	9.1	246	20,686	-	59.8			348	20,726	-	56.5	295	2.5	286	20,632	-	53.1		269	13.6																	
50--	277	22,079	-	56.0			316	22,108	-	53.0		306	5.8							340	22,226	-	54.0	61	1.4	282	22,022	-	52.5		271	10.9																	
25--	251	23,923	-	51.2			303	23,923	-	51.5		303	2.9							302	24,011	-	51.7	71	2.1	237	23,933	-	50.6		273	6.1																	
20--	225	25,112	-	49.6			281	25,160	-	50.5		310	3.5							259	25,205	-	49.5			212	25,122	-	50.7		277	11.7																	
25--	227						237	26,628	-	48.9		357	2.1													181	26,580	-	49.6																				

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Average annual values

YEAR 1958 -

[illegible]

DODGE CITY, KANS. (925 MB.)										EL PASO, TEX. (861 MB.)										ELY, NEV. (810 MB.)										FAIRBANKS, ALASKA (994 MB.)										FLINT, MICH. (988 MB.)									
SURFACE	365	792	7.2	82	227	0.8	365	1,597	12.9	61	350	1.4	364	1,908	0.9	67	184	7.4	365	135	- 4.9	76	7	1.7	364	234	3.9	83	233	2.1																			
1,000----	365	142					365	118					364	173					365	85					364	131																							
950-----	365	570					365	555					364	598					365	494	- 1.0	61	90	1.7	364	551	5.6	70	265	6.4																			
900-----	365	1,018	10.2		66	214	2.5	365	1,017				364	1,044					365	924	- 1.8	60	148	2.9	364	992	4.0	63	283	9.9																			
850-----	365	1,495	10.3		54	258	5.2	364	1,502	14.8	47	289	1.4	364	1,513				365	1,378	- 3.2	60	174	4.3	364	1,456	2.1	59	284	12.0																			
800-----	365	1,998	8.6		50	281	7.2	364	2,013	12.5	46	267	4.7	364	2,005	5.5	57	188	6.0	365	1,856	- 5.5	61	186	5.4	364	1,944	3.3	53	285	14.6																		
750-----	365	2,482	5.5		48	291	9.1	364	2,504	9.3	47	266	6.8	364	2,536				212	2.7	365	2,358		61	196	6.4	364	2,460	1.1	49	284	17.1																	
700-----	365	3,091	2.5	48					3,121	5.5			264	8.0	364	3,097	2.4	45	258	5.8	365	2,893	-11.6	60	209	7.6	364	3,007	- 4.3	47	283	20.2																	
650-----	364	3,684	- 1.3	47					3,737	1.5			268	8.4	364	3,688	- 1.6	44	267	9.3	365	3,453	-15.1	58	215	8.3	364	3,585	- 7.2	45	283	22.5																	
600-----	364	4,321	- 5.4						4,363	- 2.9			270	9.5	364	4,325	- 5.8	43	265	11.7	365	4,058	-18.9	55	214	9.5	364	4,208	-10.5	43		282	25.1																
550-----	363	4,995	- 9.8						5,040	- 7.4			269	11.9	364	4,997	-10.5		268	13.8	364	4,696	-23.1		216	9.9	364	4,869	-14.5	41		281	27.6																
500-----	363	5,727	-14.7						5,784	-12.1			270	13.4	364	5,728	-15.4		270	16.3	363	5,394	-27.8		219	11.3	362	5,590	-19.1			281	30.0																
450-----	362	6,511	-20.2						6,572	-17.6			271	15.5	364	6,510	-21.0		270	18.1	363	6,136	-33.1		221	11.9	362	6,362	-24.3			279	33.2																
400-----	362	7,381	-26.6						7,456	-23.7			270	17.7	364	7,376	-27.6		270	19.4	363	6,962	-33.1		224	12.0	361	7,216	-30.3			278	36.7																
350-----	362	8,366	-35.7						8,357	-30.7			270	19.2					270	21.8	363	6,567	-34.2		225	12.0	361	7,455	-34.2			279	40.8																
300-----	360	9,397	-41.3						9,496	-38.6					364	9,382	-42.7		261	22.7	362	8,879	-51.7		225	12.0	361	9,204	-44.1			277	45.0																
250-----	357	10,614	-49.4						10,725	-47.3					361	10,591	-50.9		261	20.4	359	10,052	-54.7		225	12.4	360	10,410	-50.6			276	49.0																
200-----	344	12,054	-55.6						12,175	-55.2					354	12,023	-56.6				348	11,487	-51.5		227	12.8	359	11,851	-54.2			277	50.7																
175-----	340	12,901	-57.4						13,020	-58.8					351	12,875	-58.1				344	12,357	-50.1		227	12.4	359	12,706	-54.8			278	48.6																
150-----	336	13,871	-59.3						13,980	-62.4					346	13,835	-59.1				338	13,364	-49.4		231	12.4	359	13,691	-55.4			278	43.9																
125-----	333	15,008	-61.4						15,096	-65.9					344	14,974	-60.5				327	14,557	-49.2		232	10.5	357	14,851	-56.4			277	35.6																
100-----	323	16,386	-62.8						16,441	-68.4					333	16,360	-61.7				318	16,016	-49.3		234	11.3	354	16,265	-57.4			277	29.7																
80-----	317	17,742	-61.7						17,821	-61.7					326	17,742	-66.9				309	16,517	-49.6		237	11.7	351	16,817	-55.4			278	21.6																
60-----	305	19,559	-58.7						19,541	-61.5					322	19,539	-58.3				296	19,363	-49.9		238	11.8	349	19,503	-55.5			282	13.8																
50-----	296	20,711	-56.8						20,679	-58.7					316	20,691	-56.4				292	20,556	-50.2		233	20,669	-54.5					287	10.1																
40-----	280	22,132	-54.7						22,090	-55.8					305	22,113	-54.5				282	22,012	-50.7		238	22,101	-53.2					294	8.0																
30-----	223	23,984	-52.7						23,937	-52.5					275	23,963	-52.2				260	23,881	-51.1		240	23,964	-51.6					303	5.4																
25-----	172	25,166	-51.5						25,121	-50.7					213	25,150	-50.8				241	25,067	-51.4		246	25,152	-50.5					330	3.5																

FORT HUACHUCA, ARIZ. (857 MB.)										FORT WORTH, TEX. (995 MB.)										GLASGOW, MONT. (934 MB.)										GRAND JUNCTION, COLO. (852 MB.)										GREAT FALLS, MONT. (887 MB.)									
SURFACE	334	1,428	12.4		222	1.2	364	180	14.1	80	210	0.8	365	696		1.9	74	68	1.7	364	1,474		55	119	6.2	364	1,123		233	8.5																			
1,000-	334	111					364	139					365	136						364	136					364	136		5.0	65																			
950----	334	547					364	573	14.5	69	210	6.0	365	554						364	561					364	554																						
900----	334	1,009					364	1,031	13.4	65	228	7.2	365	995	5.8	60	270	2.1	364	1,017						364	1,004																						
850----	334	1,496	13.4				364	1,512	11.8	60	244	7.6	365	1,463	4.9	54	291	7.6	364	1,496	8.4				119	6.8	364	1,472	6.4	53	251	12.0																	
800----	334	2,007	12.1	44			189	1.4	364	2,018	9.7	55	256	7.8	365	1,956	2.4	53	294	10.7	364	1,999	9.4	42	148	4.9	364	1,968	3.7	54	272	11.7																	
750----	334	2,539	8.9				220	2.3	364	2,549	6.9	52	265	8.9	365	2,472	-.7	54	295	13.4	364	2,528	6.5	43	228	3.7	363	2,484	7.7	55	279	13.4																	
700----	334	3,113	5.4				235	4.5	364	3,137	3.8	52	271	10.3	365	3,023	-.3	54	294	15.5	364	3,094	2.6	45	265	7.4	363	3,040	-.2	55	282	15.5																	
650----	333	708	1.7				241	6.0	364	712	2.7	47	271	13.3	365	702	7.2	52	291	16.1	364	3,688	2.1	47	274	10.5	363	3,649	4.4	54	288	15.5																	
600----	334	3,515	5.4				249	8.2	364	3,532	-.8	47	271	14.3	365	3,425	-.11	50	292	20.0	364	4,322	-.6	47	278	13.0	363	4,247	-.10	52	282	21.9																	
550----	333	5,031	-7.1				255	9.7	364	5,028	-8.1		270	17.1	365	4,881	-15.2	46	292	21.2	364	4,989	-10.8	46	278	15.2	363	4,906	-14.5	48	282	23.5																	
500----	332	7,778	-12.1				260	12.2	364	5,769	-12.7		271	20.2	365	5,602	-20.0		291	22.2	364	5,723	-15.9		281	16.9	363	5,630	-19.3	3	282	25.3																	
450----	332	6,566	-17.7				260	14.6	364	6,556	-18.0		271	23.9	365	6,365	-25.4		289	23.3	364	6,501	-21.4		281	18.7	363	6,397	-24.8	44	282	27.6																	
400----	332	7,447	-24.0				259	17.9	363	7,435	-24.3		270	28.0	365	7,220	-31.6		285	24.3	364	7,368	-27.7		281	20.2	362	7,253	-31.1		282	29.9																	
350----	330	8,408	-31.1				260	21.2	363	8,395	-31.2		269	32.8	365	8,151	-38.7		283	23.7	364	8,314	-34.8		280	21.0	362	8,186	-38.3		280	32.4																	
300----	330	9,209	-37.0				259	26.2	363	9,196	-37.1		269	39.9	365	9,391	-46.3		283	25.9	364	9,465	-42.7		277	22.9	362	9,228	-46.1		282	36.3																	
250----	326	10,709	-47.7				259	31.7	362	10,696	-47.8		270	44.5	364	10,382	-53.8		277	25.3	363	10,582	-50.7		277	24.3	363	10,319	-53.7		283	39.5																	
200----	296	12,161	-55.6				261	36.7	361	12,143	-55.4		272	48.6	358	11,805	-56.1				359	12,016	-56.0				362	11,844	-56.4		282	35.9																	
175----	255	13,010	-58.7				258	33.8	356	12,988	-58.6		273	47.2	356	12,656	-55.2				358	12,863	-57.4				362	12,693	-56.0		281	35.4																	
150----	213						260	33.2	356	13,950	-61.8		274	42.9	353	13,643	-54.8				358	13,834	-59.0				359	13,674	-55.4		282	32.3																	
125----							350	15,069	-65.0			275	35.4	349	14,808	-55.3				350	14,972	-61.1				356	14,838	-55.7		283	27.0																		
100----							348	16,422	-66.8			276	25.8	344	16,230	-55.6				356	16,353	-62.3				347	16,256	-56.4		281	25.1																		
80----							340	17,774	-71.7			277	35.4	337	17,652	-56.5				356	17,811	-61.3				337	17,674	-56.1		281	15.7																		
60----							328	19,541	-61.5			286	2	328	19,488	-54.9				321	19,533	-58.4				305	19,533	-58.4		305	9.5																		
40----							321	20,679	-58.8			64	1.7	323	20,657	-54.2				316	20,684	-56.6				324	20,670	-54.8		316	7.0																		
30----							314	22,089	-56.3			78	5.4	317	22,089	-53.5				308	22,107	-55.1				318	22,101	-53.8		333	4.9																		
20----							292	23,929	-53.2			80	8.0	285	23,945	-52.5				259	23,963	-52.8				285	23,956	-52.6		353	4.9																		
25----							268	25,110	-51.4			81	8.7	217	25,123	-51.9										233	25,140	-51.5		353	5.4																		

See reference note at end of table

RAWINSONDE DATA

Average annual values

YEAR 2000

GREEN BAY, WIS. (990 MB.)										GREENSBORO, N. C. (985 MB.)										HILO, T. H. (1015 MB.)										INTERNAT. FALLS, MINN. (971 MB.)										JACKSON, MISS (1000 MB.)									
Standard pressure surface (mb.)		Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed																		
SURFACE	364	210	2.7	85	292	3.3	365	273	9.0	85	332	1.4	365	11	20.3	87	249	4.1	365	360	-0.5	74	273	1.2	365	101	12.8	87	56	0.6																			
1,000--	364	125					365	149					365	140	21.5	79	273	2.5	365	123					365	148	13.3	80	68	1.2																			
950--	364	543	4.7	68	294	5.8	365	577	11.2	68	299	4.9	365	584	18.8	81	66	4.3	365	537	1.2	69	259	2.7	365	583	14.2	67	240	2.5																			
900--	364	983	3.3	63	259	8.4	365	1,029	9.8	63	292	7.8	365	1,047	15.7	83	75	5.6	365	971	-9	65	281	7.4	365	1,038	12.7	64	257	2.2																			
850--	364	1,445	1.4	60	295	10.7	365	1,503	8.0	61	281	10.7	365	1,531	12.8	84	81	4.7	365	1,430	-4	67	294	10.1	365	1,517	10.8	60	264	7.6																			
800--	364	1,932	-5.9	55	293	13.4	365	2,002	6.0	57	279	13.0	365	2,039	-10.8	74	90	4.1	365	1,914	-2.3	54	298	12.4	365	2,021	8.6	54	270	9.5																			
750--	364	2,445	-2.5	51	290	16.3	365	2,528	3.7	52	274	15.5	365	2,579	9.9		91	3.5	365	2,422	-4.5	54	299	15.0	365	2,552	6.1	50	274	11.7																			
700--	364	2,992	-5.1	47	291	18.3	365	3,087	1.1		272	17.5	365	3,149	8.2		102	1.4	365	2,966	-7.1	49	297	17.5	365	3,116	3.3		274	13.2																			
650--	363	3,567	-8.2	46	289	20.6	364	3,677	-2.0		271	19.8	365	3,757	5.4		296	6	365	3,537	-10.1	47	297	20.0	365	3,710	-1.1		274	15.7																			
600--	363	4,189	-11.6	43	287	22.3	364	4,313	-5.6		270	21.2	365	4,408	2.0		292	2.9	365	4,154	-13.5	45	297	23.3	365	4,350	-3.8		273	18.3																			
550--	362	4,846	-15.5	40	285	21.8	364	4,986	-9.7		270	22.7	365	5,099	-2.2		284	5.4	365	4,807	-17.4	43	297	26.4	365	5,027	-7.9		272	20.8																			
500--	362	5,564	-20.2	39	283	23.7	364	5,721	-14.2		270	24.1	365	5,856	-6.9		278	8.5	365	5,520	-22.0	42	295	29.0	365	5,767	-12.5		271	24.1																			
450--	362	6,300	-25.5		282	25.3	364	6,507	-19.6		269	24.7	365	6,665	-12.2		275	11.6	365	6,281	-27.2		294	31.5	365	6,559	-17.7		270	27.2																			
400--	362	7,181	-31.5		283	26.0	364	7,379	-25.6		268	26.8	365	7,561	-18.6		274	15.7	365	7,128	-33.3		292	35.0	365	7,437	-23.6		271	30.5																			
350--	362	8,113	-38.1		281	25.5	364	8,334	-32.4		266	26.6	364	8,543	-25.5		271	21.2	365	8,053	-39.8		292	39.1	365	8,400	-30.4		272	35.0																			
300--	362	9,159	-45.0		282	28.4	364	9,404	-40.0				364	9,644	-33.5		272	26.4	364	9,092	-46.5		291	43.1	365	9,479	-38.2		270	38.3																			
250--	361	10,360	-51.3		282	33.0	364	10,629	-47.8				364	10,899	-42.9		271	30.5	364	10,286	-52.1		289	46.6	362	10,710	-46.8		270	42.7																			
200--	360	11,798	-54.3		283	35.3	362	12,077	-54.9				363	12,368	-54.1		271	32.8	363	11,723	-53.7		287	45.3	361	12,161	-55.0		272	45.3																			
175--	339	12,653	-54.7				362	12,926	-57.5				363	13,213	-60.2		271	31.3	363	12,583	-53.2		286	42.6	360	13,008	-58.5		273	43.7																			
150--	339	13,339	-54.9				361	13,895	-59.7				363	14,161	-66.3		271	26.6	361	13,577	-52.9		287	38.1	359	13,970	-61.8		274	37.9																			
125--	357	14,802	-55.8				360	15,288	-62.1				362	15,250	-72.0		266	18.2	362	14,151	-53.4		288	33.2	356	13,090	-69.9		277	30.9																			
100--	354	16,220	-56.7				356	16,405	-63.0				357	16,552	-75.1		266	6	362	16,186	-53.9		289	27.2	354	16,443	-66.8		276	21.4																			
80--	345	17,635	-56.3				354	17,781	-62.0				356	17,847	-74.4		85	7	338	17,617	-54.2		292	21.2	351	17,794	-65.5		282	10.9																			
60--	341	19,468	-55.2				348	19,574	-58.9				353	19,551	-67.5		97	17.7	328	19,465	-53.6		299	15.3	341	19,562	-61.1		333	1.4																			
40--	339	20,635	-54.4				346	20,724	-56.9				352	20,662	-63.3		88	22.2	316	20,640	-53.2		304	12.2	343	20,703	-58.2		75	8.4																			
20--	330	22,069	-53.3				342	22,145	-54.9				350	22,047	-59.4		89	26.6	298	22,080	-52.7		311	10.1	338	22,118	-55.2		83	7.0																			
25--	282	23,929	-52.0				325	23,995	-52.4				330	23,869	-55.0		89	31.7	254	23,938	-51.8		313	10.7	320	23,969	-51.9		82	9.3																			
							287	25,176	-51.1				292	25,042	-52.8				200	25,118	-51.2				279	25,153	-50.0																						

JACKSONVILLE, FLA. (1017 MB.)										KING SALMON, ALASKA (1004 MB.)										KOTZEBUE, ALASKA (1010 MB.)										LAKE CHARLES, LA. (1016 MB.)										LANDER, WYO. (829 MB.)									
SURFACE	364	6	15.6	91	312	2.1	364	13	0.3	82	89	1.7	363	5	-5.9	77	61	2.7	365	8	16.4	85	56	2.3	365	1,696	2.9	67	233	2.1																			
1,000--	364	150	17.0	80	304	2.3	364	46			130	1.7	363	85	-14.4	70	61	2.1	365	139	17.2	78	77	3.3	365	116																							
950--	364	584	16.0	71	265	2.7	364	459	1.2	75	106	3.3	363	489	3.3	65	105	4.1	365	377	16.7	71	169	2.5	365	568																							
900--	364	1,047	14.1	66	262	5.1	364	893	-7	73	130	4.5	363	918	-4.5	64	128	4.1	365	1,037	14.6	66	219	3.9	365	1,017																							
850--	364	1,529	12.1	60	264	7.2	364	1,348	-3.1	72	143	5.1	363	1,367	-6.1		136	3.7	365	1,139	12.7	58	246	5.1	365	1,490																							
800--	364	2,035	9.8	55	265	9.1	364	1,826	-5.5	69	155	5.4	363	1,840	-8.2	61	153	4.5	365	2,027	10.6	53	261	6.8	365	1,986	6.2	51	281	1.2																			
750--	364	2,566	7.3	50	265	11.7	364	2,330	-8.1	65	165	6.0	363	2,335	-10.8		158	4.9	365	2,559	7.8	48	271	8.5	365	2,511	4.0	48	293	3.7																			
700--	364	3,135	4.5		265	14.2	364	2,864	-11.1	61	173	6.0	362	2,867	-13.7		170	4.7	365	3,129	4.7	45	274	9.7	365	3,071	-9	47	290	8.5																			
650--	364	3,731	1.4		266	17.3	364	3,426	-14.4	58	181	6.2	362	3,422	-16.8		179	5.6	365	3,726	1.4		273	11.7	365	3,656	-2.9	46	291	14.2																			
600--	364	4,377	-2.2		266	19.8	364	4,032	-18.1	53	188	6.6	362	4,025	-20.5		186	6.0	365	4,370	-2.3		270	14.0	365	4,292	-7.2	45	288	18.8																			
550--	363	5,056	-6.3		267	22.2	364	4,673	-22.2		195	6.8	362	4,657	-24.5		193	6.4	364	5,049	-6.5		269	15.0	365	4,956	-11.8		285	20.4																			
500--	363	5,804	-10.9		268	25.3	364	5,373	-26.8		199	8.0	361	5,352	-29.1		200	7.2	362	5,796	-11.1		270	16.7	365	5,688	-17.0		282	21.2																			
450--	363	6,598	-16.2		268	28.6	364	6,119	-31.9		208	9.1	361	6,090	-34.3		208	8.4	361	6,591	-16.3		272	19.0	365	6,460	-22.8		279	21.2																			
400--	362	7,484	-22.2		266	31.7	364	6,950	-37.7		213	11.1	361	6,913																																			

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Average annual values

RAPID CITY, S. DAK. (904 MB.)										ST. CLOUD, MINN. (977 MB.)										ST. PAUL IS., ALASKA (1004 MB.)										SALEM, OREG. (1009 MB.)										SALT LAKE CITY, UTAH (872 MB.)									
Standard pressure surface (mb)		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind		Number of observations		Dynamic height		Temperature		Relative humidity		Wind									
Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed										
SURFACE	365	966	4.3	69	331	3.1	364	316	1.9	82	303	1.4	365	10	1.5	89	28	2.9	365	61	8.5	91	187	2.5	365	1,288	7.2	66	155	5.4																			
1,000----	365	135											365	39	- 1.9				365	136	9.5	85	193	1.9	365	142																							
950-----	365	557											365	449	- 1.5	84	32	3.1	365	561	10.1	73	202	3.1	365	568																							
900-----	365	1,003	4.9	64	326	3.3	364	980	4.2	70	297	2.5	365	882	- 2.3	81	38	2.7	365	1,012	8.6	62	232	8.5	365	1,499	10.6	47	162	5.8																			
850-----	365	1,472	6.7	53	304	8.4	364	1,449	2.6	55	296	10.1	365	1,334	- 1.2	75	33	1.6	365	1,484	6.6	57	239	10.7	365	1,979	10.6	47	162	5.8																			
800-----	365	1,968	4.6	52	304	10.9	364	1,938	2.2	52	297	12.9	365	1,811	- 6.2	68	13	6.5	364	1,979	4.2	57	239	10.7	365	2,499	1.4	53	244	12.6	5.3	15	242	5.1															
750-----	365	2,488	1.9	52	303	13.6	364	2,458	- 1.9	50	297	14.8	365	2,313	- 1.2	61	258	6.3	364	2,499	- 1.4	53	244	12.6	365	2,529	1.9	48	270	8.7																			
700-----	365	3,046	- 1.3	52	299	15.7	364	3,001	- 4.7	48	296	17.1	365	2,846	-11.5	57	265	2.3	364	3,055	- 1.6	49	249	14.4	365	3,093	1.2	48	270	8.7																			
650-----	365	3,626	- 5.0	50	294	17.9	364	3,579	- 7.9	45	295	19.2	365	3,408	-14.7	54	271	2.9	364	3,636	- 1.5	46	251	15.9	365	3,680	- 2.9	50	272	11.9																			
600-----	365	4,257	- 8.9	47	292	20.4	364	4,199	-11.5	43	295	21.8	365	4,014	-18.2	50	276	2.5	364	4,266	- 8.9		255	17.7	365	4,315	- 7.2	49	272	14.6																			
550-----	365	4,918	-13.3	45	291	23.5	364	4,858	-15.5	40	294	22.9	365	4,654	-22.3		266	2.9	364	4,929	-13.0		258	18.8	365	4,981	-11.8		271	17.3																			
500-----	365	5,645	-18.3		289	26.6	364	5,575	-20.1		292	24.7	365	5,353	-26.9	47	248	3.7	364	5,656	-17.8		261	20.8	365	5,711	-16.8	44	272	19.8																			
450-----	365	6,416	-23.8		288	29.3	364	6,344	-25.5		292	25.1	365	6,098																																			

See reference note at end of table

Average annual values

YEAR 1958

YAKUTAT, ALASKA (1009 MB.)					YUCCA FLAT, NEV. (881 MB.)					YUMA, ARIZ. (998 MB.)								
SURFACE	360	12	3.5	88	93	4.3	353	1,196	6.5	54	300	1.2	356	105	18.7	47	24	0.6
1,000----	360	82	4.5		98	3.7	353	136					356	97				
950----	360	499	4.0	74	121	5.2	353	565					356	538	21.4	35	318	2.9
900----	360	939	1.5	73	141	5.1	353	1,018					356	1,007	19.0	34	295	2.5
850----	360	1,398			156	4.9	353	1,495	13.4	35	321	2.1	356	1,495	15.9	37	262	1.9
800----	360	1,880			170	4.9	353	2,003	10.8	33	215	2.9	356	2,006	12.4	37	243	2.7
750----	360	2,387	- 6.6	65	184	4.7	353	2,535	7.4	35	221	4.1	356	2,541	8.8		240	3.7
700----	360	2,924	- 9.7	60	199	5.2	353	3,102	3.6	35	234	5.4	356	3,111	5.1		249	4.7
650----	360	3,489	-13.2	57	216	6.0	353	3,694	- .5		243	6.4	356	3,708	1.2		256	6.6
600----	360	4,099	-17.0	53	226	7.6	353	4,334	- 4.7		256	8.7	356	4,351	- 2.9		263	8.9
550----	360	4,741	-21.2	51	233	9.1	353	5,005	- 9.2		265	12.0	356	5,029	- 7.5		271	11.5
500----	360	5,445	-25.9	49	236	10.5	353	5,745	-14.7		271	15.3	356	5,770	-12.5		274	14.2
450----	360	6,192	-31.2		245	10.1	353	6,526	-19.7		273	19.2	356	6,549	-16.8		277	16.5
400----	359	7,027	-37.0		253	11.5	353	7,401	-26.2		273	23.3	356	7,435	-24.8		275	20.6
350----	359	7,938	-43.4		255	11.3	353	8,353	-33.5		272	26.2	356	8,392	-32.0		275	24.3
300----	359	8,961	-49.6				353	9,417	-41.6		272	30.7	356	9,464	-39.9		273	29.7
250----	358	10,144	-53.2				352	10,632	-49.8		271	35.6	356	10,687	-48.3		272	35.8
200----	357	11,585	-51.7				349	12,069	-56.3		269	40.8	350	12,131	-56.0		270	41.6
175----	356	12,544	-50.6				346	12,914	-58.2		268	40.0	330	12,972	-58.8		266	40.6
150----	355	13,462	-50.1				343	13,881	-59.1		267	37.5	304	13,932	-61.6		265	37.9
125----	355	14,652	-50.0				330	15,016	-61.9		270	31.3	263	15,049	-64.6		266	31.7
100----	353	16,110	-50.1				308	16,389	-63.7		272	21.8	188	16,410	-66.8		267	20.2
80----	347	17,570	-50.3				269				275	11.7						
60----	344	19,447	-50.8				257				305	3.1						
50----	335	20,638	-51.1				251				19	1.2						
40----	328	22,092	-51.2				235				62	2.9						
30----	316	23,964	-51.4				189				64	5.2						
25----	279	25,155	-51.1															
20----	246	26,633	-50.5															

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Average daily values (direct and diffuse) received
on a horizontal surface, tabulated in langleys

YEAR 1958

Station	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Aklavik, Mackenzie	5	50	302	351	487	571	442	325	176	56	7	7	7
Albuquerque, N. M.	293	372	464	615	684	744	735	665	509	407	337	307	510
Annette, Alaska	90	81	286	409	431	561	751	291	236	88	53	39	261
Apalachicola, Fla.	301	426	426	561	593	577	558	508	500	406	326	229	451
Astoria, Ore.	77	119	267	355	498	429	512	544	337	237	106	67	296
Atlanta, Ga.	241	366	346	428	538	548	528	510	447	356	263	236	400
Barrow, Alaska	16	42	176	373	511	514	445	258	116	39	15	15	100
Bethel, Alaska	35	108	211	416	440	355	477	270	199	138	44	18	218
Bismarck, N. Dak.	144	252	341	428	657	576	567	546	419	247	171	135	378
Blue Hill, Mass.	143	233	284	391	458	520	432	464	353	258	177	100	322
Boise, Idaho	136	197	336	456	609	608	681	562	441	332	188	120	389
Boston, Mass.	117	205	265	375	429	511	413	466	332	245	162	136	306
Brownsville, Tex.	287	317	358	479	541	532	532	577	380	280	281	218	460
Canton Island, Pacific Area	415	---	573	541	512	532	543	566	616	640	625	465	---
Cape Hatteras, N. C.	289	357	396	543	643	581	711	565	536	372	281	248	460
Caribou, Me.	125	245	317	401	482	496	485	416	344	195	130	149	313
Charleston, S. C.	234	348	339	468	535	565	545	485	445	328	271	185	396
Cleveland, Ohio	118	207	276	456	591	528	492	498	358	291	159	145	343
Columbia, Mo.	187	297	235	403	556	539	464	553	365	330	220	182	363
Corvallis, Oreg.	87	109	313	383	577	514	684	606	402	266	118	77	410
Dartmouth, N. S.	99	195	311	316	404	467	473	426	303	240	147	124	345
Davis, Calif.	146	180	353	553	651	682	692	626	503	357	255	181	452
Dodge City, Kans.	264	262	308	447	592	620	588	606	462	412	287	246	425
East Lansing, Mich.	171	256	280	239	424	551	481	524	362	305	161	130	340
Edmonton, Alberta	81	155	317	358	517	523	544	445	300	194	107	63	300
El Paso, Tex.	313	413	490	674	692	720	673	642	483	376	347	331	513
Ely, Nev.	243	307	411	574	678	754	674	563	536	412	282	228	472
Fairbanks, Alaska	22	82	218	383	528	528	341	202	102	443	102	443	413
Ft. Worth, Tex.	255	274	330	393	560	606	635	551	406	302	296	241	404
Fresno, Calif.	174	246	354	513	594	641	622	554	466	352	251	183	413
Gainesville, Fla.	209	436	404	506	623	558	573	563	550	431	379	253	457
Glasgow, Mont.	128	244	315	450	616	554	545	508	390	270	154	131	---
Grand Junction, Colo.	226	264	360	467	604	722	692	642	474	413	274	225	447
Grand Lake, Colo.	194	289	485	---	---	---	---	---	---	---	---	---	---
Great Falls, Mont.	126	211	333	396	600	532	543	542	406	274	146	96	349
Greensboro, N. C.	208	292	278	405	492	552	504	473	469	348	243	220	374
Griffin, Ga.	258	381	339	433	566	559	509	520	417	345	274	217	402
Indianapolis, Ind.	151	260	223	390	510	498	446	513	383	347	178	165	339
Inyokern, Calif.	344	368	531	717	814	883	839	725	653	491	376	323	589
Ithaca, N. Y.	109	213	244	402	522	545	464	529	335	292	134	143	328
Lake Charles, La.	304	282	396	452	507	586	514	467	345	328	268	232	390
Lander, Wyo.	249	308	438	556	611	687	642	592	419	357	229	168	438
Laramie, Wyo.	224	281	424	474	569	663	573	552	446	351	227	178	414
Las Vegas, Nev.	304	360	478	618	694	798	740	609	546	434	314	273	514
Lemont, Ill.	174	295	276	414	582	472	446	487	387	319	182	160	350
Lexington, Ky.	168	311	242	435	626	605	519	575	453	405	322	205	406
Lincoln, Nebr.	182	262	338	420	574	561	508	563	467	423	242	200	392
Little Rock, Ark.	222	253	269	359	457	503	467	467	343	348	264	203	---
Los Angeles, Calif. (U)	274	288	350	540	585	689	662	592	546	396	298	253	456
Los Angeles, Calif.	281	320	390	554	591	706	652	586	598	396	286	231	466
Madison, Wis.	154	---	---	---	---	---	---	---	444	315	175	170	---
Manhattan, Kans.	182	244	283	458	586	606	510	556	395	384	219	157	382
Matanuska, Alaska	29	101	240	390	380	449	323	275	185	---	35	16	---
Mauna Loa Obs., Hawaii	---	---	---	---	---	---	---	---	---	---	---	---	---
Medford, Ore.	99	165	338	475	623	546	662	593	420	312	114	85	369
Miami, Fla.	280	422	401	538	488	555	583	517	469	408	364	279	442
Midland, Tex.	---	313	394	549	611	627	668	585	432	305	343	304	---
Moosonee, Ontario	98	173	350	405	369	459	429	297	264	135	77	75	261
Nashville, Tenn.	173	300	235	392	689	592	481	514	416	366	232	200	383
Newport, R. I.	148	240	283	403	534	527	455	448	371	267	178	151	334
New York, N. Y.	139	219	345	415	446	547	448	451	374	255	177	156	331
Normandin, Quebec	113	200	354	378	445	448	429	370	298	168	111	101	285
North Omaha, Nebr.	186	294	331	411	548	615	477	553	435	368	219	184	383
Oak Ridge, Tenn.	185	312	257	376	503	587	452	480	436	342	233	198	363
Oklahoma City, Okla.	264	294	327	505	546	646	627	575	421	349	271	239	422
Ottawa, Ontario	123	204	363	414	448	517	475	486	298	211	138	127	317
Phoenix, Ariz.	326	378	476	684	772	---	---	---	---	---	---	---	---
Portland, Me.	113	230	321	395	487	530	443	507	346	263	183	139	330
Pullman, Wash.	---	---	---	---	---	---	---	---	---	307	133	84	---
Raleigh, N. C.	246	406	303	441	500	552	554	479	459	327	237	212	385
Rapid City, S. Dak.	200	288	328	478	643	603	546	579	440	327	200	170	400
Resolute Bay, N. W. T.	---	26	368	370	505	619	445	283	112	31	#1	---	---
Riverside, Calif.	300	332	423	563	618	735	694	589	560	429	327	280	488
St. Cloud, Minn.	145	256	379	463	545	503	546	512	379	260	150	129	356
San Antonio, Tex.	305	295	393	425	552	596	643	582	374	252	270	249	411
Santa Maria, Calif.	268	270	401	658	652	810	675	564	543	413	331	268	488
Sault Ste. Marie, Mich.	128	248	396	486	589	617	533	509	330	234	115	135	360
Sayville, N. Y.	177	270	331	461	465	560	513	475	424	305	205	178	403
Schenectady, N. Y.	128	220	256	344	370	461	378	427	283	225	157	146	283
Seattle, Wash. (U of W.)	68	125	345	---	559	468	306	495	260	192	73	59	---
Seattle-Tacoma, Wash.	77	142	289	417	572	572	625	532	345	206	96	58	328
Shreveport, La.	265	324	364	845	545	537	577	540	364	329	266	204	430
Spokane, Wash.	95	149	310	407	611	583	673	575	368	271	119	70	354
State College, Pa.	144	230	247	420	499	527	513	501	355	270	168	149	335
Swan Island, W. I.	496	575	671	705	---	---	---	389	---	---	---	---	---
Tampa, Fla.	291	431	407	503	563	585	565	481	496	414	350	260	446
Toronto, Ontario	116	200	386	448	535	553	506	487	333	242	137	110	338
Tucson, Ariz. (U of A.)	354	328	---	648	710	691	655	619	520	439	353	336	---
Wake Island, Pacific Area	483	565	618	656	709	700	638	652	627	489	501	470	592
Washington, D. C.	191	281	284	435	497	453	485	456	429	308	211	175	360
Winnipeg, Manitoba	105	205	397	410	564	598	519	474	309	209	113	99	334

Note: Langley is the unit used to denote one gram calorie per square centimeter.

- (U) Indicates Urban sites.
- * Occurred on May 31.
- † Sun below horizon through 28th.
- ‡ Sun below horizon after 18th.
- # Polar night starts Nov. 7.

Chart I. Departure from Normal of Annual Average Temperature (°F) at Surface, 1958

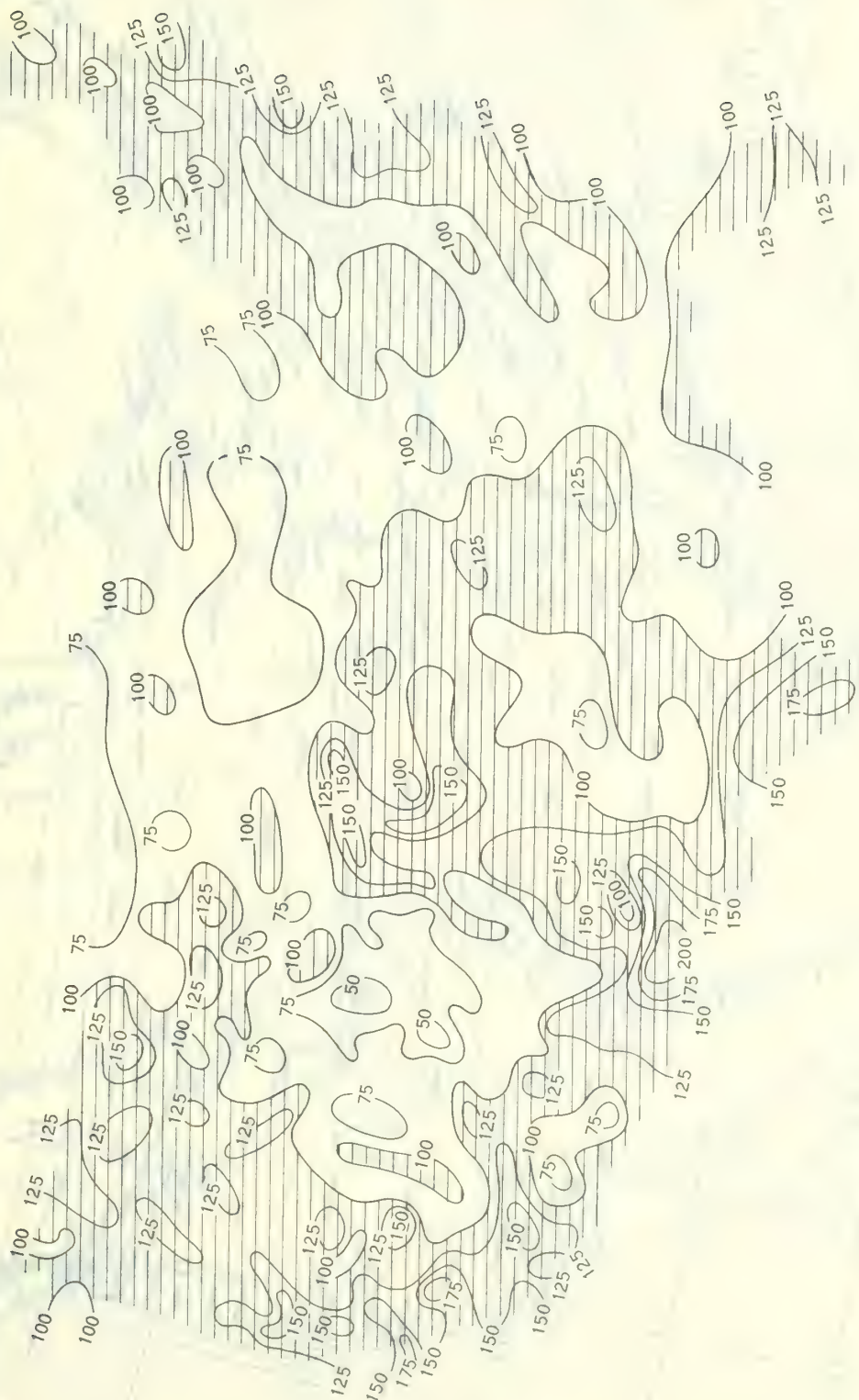


Shaded Areas Normal or Above

Chart II. Total Precipitation, 1958
(Inches)



Chart III. Percentage of Normal Annual Precipitation, 1958



Shaded Areas Normal or Above

Chart IV. Tracks of Tornadoes, 1958



